
PRIMERGY TX150 S2

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General information

Description

The PRIMERGY TX150 S2 server is an Intel-based server for small and mid-size networks. It can be used as a floorstand model as well as a rack model. The floorstand model can be converted to a rack model with an optional available conversion kit.

The PRIMERGY TX150 S2 server offers a high level of data safety and availability through highly developed hardware and software components. Hardware components include hot-plugable hard disk modules, optional hot-plugable power supply modules, *ServerView* server management, Prefailure Detection and Analysing (PDA), and Automatic Server Reconfiguration and Restart (ASR&R).

Security functions in the BIOS Setup and on the system board protect the data on the server against manipulation. You find the detailed description of the BIOS Setup utility in the BIOS Setup manual on the PRIMERGY ServerBooks CD.

As a floorstand model, the lockable drive cover offers additional protection. As a rack model, the lockable front door of the rack offers additional security.

Features

System board D1751

- System board in (ATX + 3.4 x 6) format
- Intel® Pentium 4 processor (Northwood/Prescott)
- Intel® E7210/6300ESB chipset
- 1 processor socket for Intel® Pentium 4 processor with 478 pin surface up to 3.2 GHz and 800/533/400MHz front side bus
- Intel Celeron can also be connected (optional)
- 1MB/512KB/128 L2 cache
- Dual-channel memory architecture:
4 x 184-pin DDR DIMM sockets for up to 4GB memory with
PC3200/2700/2100 DDR SDRAM memory,
supports PC3200/2700/2100 unbuffered ECC DDR DIMM or ECC DDR
DIMM modules for a data transfer rate of up to 6.4 B/s
- 3 PCI slots with 32bit/33 MHz
- 2 PCI slots with 64bit/66MHz
- Intel 82547GI Gigabit Ethernet controller with 10/100/1000 Mbit/s (Intel
Kenai II)
- Memory, supported by South Bridge (6300ESB ICH):
2 x UltraDMA100 connectors
- Video controller ATI Rage XL VGA onboard with 8 Mbyte SDRAM memory
- 2 fast-IDE (ATA) controller onboard (2x ATA-100)
- LSI 1020 SCSI bus controller
- 2 USB 1.0 UHCI controller
- 1 USB 2.0 EHCI controller
- 4Mbit BIOS Flash PROM
- Super I/O controller Winbond W83627THF-A
- 2 x USB 2.0 connector
- Cover and system monitoring, sensor monitoring, power monitoring, fan
monitoring
- Server Management with system fan, CPU fan and PSU fan revolution
monitoring and controlling, intrusion detection, Wake on LAN, ASR&R
- 2 external serial ports (COM1, COM2)
- 2 external USB 2.0 ports
- 1 RJ45 LAN connector (10/100/1000 MBit/s)
- 2 external PS/2 ports for keyboard and mouse
- 1 external USB port

General information	Description
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Hard disk subsystem

There are two versions of the hard disk subsystem:

- SCSI version
- SATA version

SCSI version

The hard disk subsystem consists of the hard disk cage with up to four ULTRA-320 SCSI hard disk modules and the SCSI backplane. Each hard disk module can accommodate a SCSI hard disk drive with a SCA (Single Connector Attachment) interface and a maximum height of 1 inch. The module is connected to the SCSI backplane without cables via the SCA interface. This allows hard disk modules to be simply plugged in or pulled out.

The hard disk subsystem can be controlled by the onboard U320 controller, a PCI standard SCSI controller or by a SCSI RAID controller.

In the SCSI version it is possible to install a HDD extension box in two bays of the accessible drives. By this three additional ULTRA-320 SCSI hard disk modules can be used.



Only if the server is equipped with a RAID controller, a defective hard disk module can be replaced during operation (hot-plug).

SATA version

The hard disk subsystem consists of the hard disk cage with up to four SATA hard disk modules and the SATA backplane. Each hard disk module can accommodate a SATA hard disk drive with a SATA interface and a maximum height of 1 inch. The module is connected to the SATA backplane without cables via the SATA interface. This allows hard disk modules to be simply plugged in or pulled out.

The hard disk subsystem can be controlled by a SATA controller or by a SATA RAID controller.



Only if the server is equipped with a RAID controller, a defective hard disk module can be replaced during operation (hot-plug).

Accessible drives

A 3.5-inch floppy disk drive (1.44 MB) and three bays for the installation of accessible drives (CD-ROM, DVD-ROM, CD burner or tape drive) are available. The accessible drives cannot be replaced during operation.

In the SCSI version it is possible to install a HDD extension box in two bays of the accessible drives.

Power supply

In its basic configuration level the server has a fixed power supply unit (standard power supply) that adjusts automatically to a power voltage in the range from 100 V - 240 V.

As an option, this power supply unit can be replaced with a hot-plug power supply unit (redundant power supply) which consists of two power supply modules in the maximum configuration. To achieve redundant power supply the second power supply module must be added.

If one power supply module of the redundant power supply unit fails, the second power supply module ensures unimpaired continued operation and the defective power supply module can be replaced during operation (hot-plug).

High level of availability and failure protection

When accessing stored data, 1-bit-errors in the main memory are automatically recognized and corrected by ECC mechanism (ECC = Error Detection Code).

ASR&R (Automatic Server Reconfiguration and Restart) tunes out defective system components during an automatic system reboot.

The Prefailure Detection and Analysing Technology (PDA) analyzes and monitors all components that are vital for the system's reliability.

Optional RAID controllers increase system availability and support the RAID levels 0,1 and 5.

The hot-pluggable hard disks provide additional protection.

Server management

Server management is implemented with aid of the supplied *ServerView* software and PDA (Prefailure Detection and Analyzing) technology. PDA reports the threat of system errors or problems to the system administrator so that preventative measures can be taken.

General information	Description
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ServerView enables the management of all PRIMERGY servers in the network via a central console. Here *ServerView* supports the following functions:

- Remote power-on (Wake On LAN)
- Intrusion Detection
- Temperature monitoring of the CPU and the surrounding area.
- Power monitoring
- Watchdog timer for Automatic Server Reconfiguration and Restart (ASR&R) in the event of failure of memory modules or processors.
- End-of-Life monitoring of the fans with timely notification before a failure
- Watchdog timer for operating system monitoring and application monitoring

Further information on the *ServerView* server management is provided in the associated documentation.

ServerStart

You can configure the PRIMERGY server quickly and purposefully with the *ServerStart* software provided. User-guided menus are available for installing the server operating systems.

Service and Support

PRIMERGY servers are service-friendly and modular, thus enabling quick and simple maintenance. The flash EPROM program supplied with the FSC utilities supports fast BIOS update BIOS update. With the optional Remote Test and Diagnosis System *RemoteView*, long-distance maintenance and service (remote) can also be performed on the servers of the PRIMERGY series. A *RemoteView* service board S2(RSBS2) can be used in conjunction with *RemoteView*. Due to this remote diagnosis for system analysis, remote configuration and remote restart (also when the operating system failed or hardware failures appear) are made possible.

Product designations



The sales information contained in this service manual is provided for service and may not be used as sales documentation. It is possible that some products of the overview can not be ordered any more.

Product	Base units
	PRIMERGY TX150S2 with 1x Celeron/Pentium 4 processor 1 x onboard U320 SCSI controller Intel LAN onboard 10/100/1000 Mbit graphics onboard controller ATI Rage XL 8 MB drive bay 3.5" occupied by one floppy disk 1.44 MB standard power supply <i>ServerView, ServerStart on CD</i>
SCSI version	
S26361-K934-V105	Floorstand model with Pentium 4 processor 3.0 GHz/800 MHz /512 KB cache, 2x 256 MB memory
S26361-K934-V115	Floorstand model with Pentium 4 processor 3.0 GHz/800 MHz /512 KB cache, 2x 512 MB memory
S26361-K934-V125	Floorstand model with Pentium 4 processor 3.0 GHz/800 MHz /512 KB cache, 2x 1 GB memory
S26361-K934-V107	Floorstand model with Pentium 4 processor 3.0 GHz/800 MHz /1 M cache, 2x 256 MB memory
S26361-K934-V117	Floorstand model with Pentium 4 processor 3.0 GHz/800 MHz /1 M cache, 2x 512 MB memory
S26361-K934-V127	Floorstand model with Pentium 4 processor 3.0 GHz/800 MHz /1 M cache, 2x 1 GB memory
S26361-K934-V108	Floorstand model with Pentium 4 processor 3.2 GHz/800 MHz /1 M cache, 2x 256 MB memory
S26361-K934-V118	Floorstand model with Pentium 4 processor 3.2 GHz/800 MHz /1 M cache, 2x 512 MB memory
S26361-K934-V128	Floorstand model with Pentium 4 processor 3.2 GHz/800 MHz /1 M cache, 2x 1 GB memory
S26361-K934-V305	Rack model with Pentium 4 processor 3.0 GHz/800 MHz /512 KB cache, 2x 256 MB memory
S26361-K934-V315	Rack model with Pentium 4 processor 3.0 GHz/800 MHz /512 KB cache, 2x 512 MB memory

Product	Base units
S26361-K934-V325	Rack model with Pentium 4 processor 3.0 GHz/800 MHz /512 KB cache, 2x 1 GB memory
S26361-K934-V307	Rack model with Pentium 4 processor 3.0 GHz/800 MHz /1 M cache, 2x 256 MB memory
S26361-K934-V317	Rack model with Pentium 4 processor 3.0 GHz/800 MHz /1 M cache, 2x 512 MB memory
S26361-K934-V327	Rack model with Pentium 4 processor 3.0 GHz/800 MHz /1 M cache, 2x 1 GB memory
S26361-K934-V308	Rack model with Pentium 4 processor 3.2 GHz/800 MHz /1 M cache, 2x 256 MB memory
S26361-K934-V318	Rack model with Pentium 4 processor 3.2 GHz/800 MHz /1 M cache, 2x 512 MB memory
S26361-K934-V328	Rack model with Pentium 4 processor 3.2 GHz/800 MHz /1 M cache, 2x 1 GB memory
SATA version (includes a 4 Port SATA controller Promise FastTrak S150-TX4)	
S26361-K934-V231	Floorstand model with Celeron processor 2.8 GHz/400 MHz /128 KB cache, 1x 256 MB memory
S26361-K934-V241	Floorstand model with Celeron processor 2.8 GHz/400 MHz /128 KB cache, 1x 512 MB memory
S26361-K934-V251	Floorstand model with Celeron processor 2.8 GHz/400 MHz /128 KB cache, 1x 1 GB memory
S26361-K934-V205	Floorstand model with Pentium 4 processor 3.0 GHz/800 MHz /512 KB cache, 2x 256 MB memory
S26361-K934-V215	Floorstand model with Pentium 4 processor 3.0 GHz/800 MHz /512 KB cache, 2x 512 MB memory
S26361-K934-V225	Floorstand model with Pentium 4 processor 3.0 GHz/800 MHz /512 KB cache, 2x 1 GB memory
S26361-K934-V207	Floorstand model with Pentium 4 processor 3.0 GHz/800 MHz /1 M cache, 2x 256 MB memory
S26361-K934-V217	Floorstand model with Pentium 4 processor 3.0 GHz/800 MHz /1 M cache, 2x 512 MB memory
S26361-K934-V227	Floorstand model with Pentium 4 processor 3.0 GHz/800 MHz /1 M cache, 2x 1 GB memory
S26361-K934-V208	Floorstand model with Pentium 4 processor 3.2 GHz/800 MHz /1 M cache, 2x 256 MB memory
S26361-K934-V218	Floorstand model with Pentium 4 processor 3.2 GHz/800 MHz /1 M cache, 2x 512 MB memory

Product	Base units
S26361-K934-V228	Floorstand model with Pentium 4 processor 3.2 GHz/800 MHz /1 M cache, 2x 1 GB memory
S26361-K934-V431	Rack model with Celeron processor 2.8 GHz/400 MHz /128 KB cache, 1x 256 MB memory
S26361-K934-V441	Rack model with Celeron processor 2.8 GHz/400 MHz /128 KB cache, 1x 512 MB memory
S26361-K934-V451	Rack model with Celeron processor 2.8 GHz/400 MHz /128 KB cache, 1x 1 GB memory
S26361-K934-V405	Rack model with Pentium 4 processor 3.0 GHz/800 MHz /512 KB cache, 2x 256 MB memory
S26361-K934-V415	Rack model with Pentium 4 processor 3.0 GHz/800 MHz /512 KB cache, 2x 512 MB memory
S26361-K934-V425	Rack model with Pentium 4 processor 3.0 GHz/800 MHz /512 KB cache, 2x 1 GB memory
S26361-K934-V407	Rack model with Pentium 4 processor 3.0 GHz/800 MHz /1 M cache, 2x 256 MB memory
S26361-K934-V417	Rack model with Pentium 4 processor 3.0 GHz/800 MHz /1 M cache, 2x 512 MB memory
S26361-K934-V427	Rack model with Pentium 4 processor 3.0 GHz/800 MHz /1 M cache, 2x 1 GB memory
S26361-K934-V408	Rack model with Pentium 4 processor 3.2 GHz/800 MHz /1 M cache, 2x 256 MB memory
S26361-K934-V418	Rack model with Pentium 4 processor 3.2 GHz/800 MHz /1 M cache, 2x 512 MB memory
S26361-K934-V428	Rack model with Pentium 4 processor 3.2 GHz/800 MHz /1 M cache, 2x 1 GB memory
S26361-F2618-L220	Conversion kit from floorstand to rack without installation kit
S26361-F2734-E31 / S26361-F2734-L31	Rack mounting kit for rack server into: <ul style="list-style-type: none"> - 19" racks (DataCenter and PRIMECENTER rack) - all server racks confirming to EIA standard EIA-310-D incl. bracket DC/PC rack, cable management DC/PC rack <p>Note: For older PRIMECENTER racks (Rev. 1B) it is necessary to order an additional carrier angle D:GP70F-ZB211.</p>
S26361-F1331-L7	Installation kit for rack model in 42/23U rack: telescopic rails, cable management

Product	Upgradings
S26113-F483-E1 / S26113-F483-L1	Upgrade option: Hot plug power supply: power supply cage, power backplane, 1x hot plug power supply module, 1x dummy cover No redundancy!
S26113-F483-E11 / S26113-F483-L11	2nd power supply module for redundancy

Product	Main memory for
	<ul style="list-style-type: none"> – There are 4 slots available. – The slots accept 256 MB, 512 GB or 1 GB DDR RAM modules. – The maximum main memory capacity is 4 GB! – Single channel and dual channel configuration are possible.
Single channel	
S26361-F3019-E512	Main memory 256 MB , DDR I 400, occupies one bank, max. 2 or 3 per system
S26361-F3019-E513	Main memory 512 MB , DDR I 400, occupies one bank, max. 2 or 3 per system
S26361-F3019-E514	Main memory 1 GB , DDR I 400, occupies one bank, max. 2 or 3 per system
Dual channel	
S26361-F3019-E522	2x main memory 256 MB , DDR I 400, occupies two banks, max. 1 per system
S26361-F3019-E523	2x main memory 512 MB , DDR I 400, occupies two banks, max. 1 per system
S26361-F3019-E524	2x main memory 1 GB , DDR I 400, occupies two banks, max. 1 per system

Product	Accessible drives <ul style="list-style-type: none"> - The system unit has 4 bays (1x3.5"/3x5.25") - The 3.5" bay is occupied by a floppy disk drive - The three 5.25" bays: <ul style="list-style-type: none"> - one bay is occupied by a DVD-/CD- or CD-RW drive - the two remaining bays can be occupied by two accessible drives or a HDD extension box (only SCSI version)
SNP:SY-F2234E1-A	DVD-ROM ATAPI; max. 2/system
SNP:SY-F2240E1-A	CD-ROM ATAPI; max. 2/system
S26361-F3008-E1	CD-RW/DVD drive; maximum 2/system
S26361-F3080-E1	CD-RW/DVD drive; maximum 2/system
S26361-F2573-E3	Tape drive LTO Ultrium, 100 GB, 7.5 MB/s, U2W SCSI; maximum 2/system
S26361-F2849-E3	Tape drive VXA-2, 80 GB, 6 MB/s, U2W SCSI; maximum 2/system
S26361-F2238-E3	Tape drive SLR 100, 50 GB, 5 MB/s, U2W SCSI; max. 2/system
S26361-F2848-E3	Tape drive DDS4 Gen5, 36 GB, 3 MB/s, U2W SCSI; maximum 2/system
S26361-F2233-E3	Tape drive DAT DDS4, 20 GB, 2.8 MB/s, U2W SCSI; max. 2/system
S26361-F2233-E13	Tape drive DAT DDS4 Autoloader, 6x20 GB, 3 MB/s, U2W SCSI; max. 1/system
S26361-F2814-E6	SCSI cable with terminator, connection accessible drive to separate SCSI controller
S26361-F2826-E1	HDD extension box; max. 1/system released only with 1- or 2-channel RAID controller

Product	Hard disk drives <ul style="list-style-type: none"> - The system unit has 4 bays - There are a SCSI and a SATA version - In the SCSI version HDD extension box possible - Hot-plug is possible with RAID controller
SCSI version	
S26361-F2764-E136	36 GB, 10000 rpm, U320 SCSI (320 MB/s), max. 4 or 7/system
S26361-F2764-E173	73 GB, 10000 rpm, U320 SCSI (320 MB/s), max. 4 or 7/system
S26361-F2764-E114	146 GB, 10000 rpm, U320 SCSI (320 MB/s), max. 4 or 7/system
S26361-F2764-E518	18 GB, 15000 rpm, U320 SCSI (320 MB/s), max. 4 or 7/system
S26361-F2764-E536	36 GB, 15000 rpm, U320 SCSI (320 MB/s), max. 4 or 7/system
S26361-F2764-E573	73 GB, 15000 rpm, U320 SCSI (320 MB/s), max. 4 or 7/system
SATA version	
S26361-F3017-E80	80 GB, 7200 rpm, SATA max. 4/system
S26361-F3017-E160	160 GB, 7200 rpm, SATA max. 4/system

Product	Description
S26361-F2425-E101	RemoteView service board S2
S26361-F2425-E201	RemoteView service board S2 accu board
S26361-F2116-E12	IDE chipDISK

System allocation

The following, and later, software- and firmware versions support the TX150 S2:

<i>ServerView</i>	Version 3.5
<i>RemoteView</i>	Version 3.1
<i>ServerStart</i>	Version 5.405
<i>ServerBooks</i>	Version 5.405
<i>ServerSupport</i>	Version 5.405

Operating systems

Manufacturer	Operating system
Microsoft	Windows 2000 Server; SBS
	Windows 2003 Standard; WEB Edition
	Windows SBS 2003 Standard Edition
Novell	NetWare 6 int'l; 6.5
	Cluster Services 1.6
	iSCSI Cluster Service 1.7
SuSE	LINUX ES-7
	LINUX ES-8
	LINUX 8.1
	LINUX 8.2
Red Hat	LINUX EL 2.1
	LINUX 8.0
	LINUX 9.0

Service

The type label can be found at the rear side of the server.

The system serial number is written on the type label. You need it if there is a HW error.

Technical data

Electrical data (standard and redundant power supply)

Rated voltage range	100 V - 240 V
Frequency	50 Hz - 60 Hz
Rated current in basic configuration	100 V - 240 V / 1.9 A - 0.8 A
Max. rated current	100 V - 240 V / 6 A - 3 A
Effective power	274 W
Apparent power	300 VA
Heat emission	986 kJ/h
Building fuse	16 A
Protection class	I

National and international standards

Product safety	IEC 60950 / EN 60950 / UL 60950 3rd. Ed., CAN/CSA 22.2 No. 60950 3rd. Ed.
Electromagnetic compatibility:	FCC class A VCCI class A AS / NZS 3548 class A CNS 13438
Interference emission	EN 55022 class A
Harmonic current	EN 61000-3-2 JEIDA
Flicker	EN 61000-3-3
Interference immunity	EN 55024
CE certification	to EU directives: 73/23/EEC (low voltage directive) 89/336/EEC (Electromagnetic compatibility, product safety)

Dimensions

Dimensions	Floorstand model	Rack model
Width	205 mm	482 mm (front panel)
Depth	605 mm	642 mm (with handles)
Mounting depth	--	607 mm
Height	444 mm (with feet)	221 mm or 5 HU

Weight

Approx. 21 - 28 kg (depending on the configuration)

Ventilation intervals

Approx. 200 mm to the front and rear

Maintenance area for the floorstand server

1.2 m on the left side. The maintenance area may also be used, but must be quickly accessible.

Environmental conditions

Environment class 3K2	DIN IEC 721 part 3-3
Environment class 2K2	DIN IEC 721 part 3-2
Temperature:	
- Operating (3K2)	10 °C 35 °C
- Transport (2K2)	-25 °C 60 °C
Humidity	10%...85%

Condensation in operating must be avoided!

Noise level

Sound power level L_{WAd} (ISO 9296):	$\leq 5,8$ B (stand-by) ≤ 6 B (operation)
Sound pressure level at bystander position L_{pAm} (ISO 9296) for standard configuration	≤ 43 dB(A) (stand-by) ≤ 45 dB(A) (operation)

Installation and initial operation

Installation

Preparation

Unpacking the server

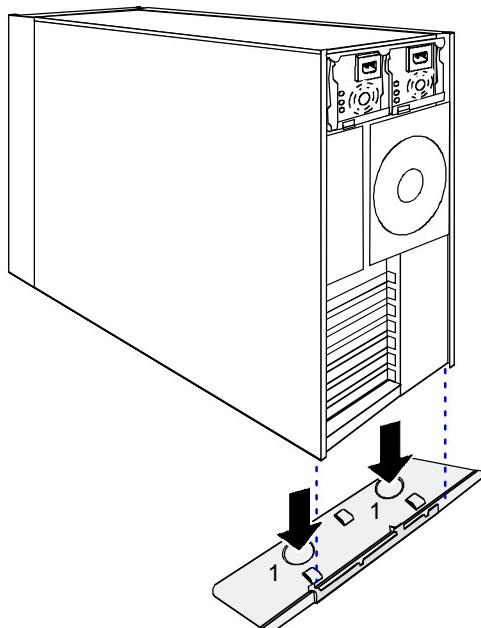


Do not unpack the server until it is at its installation location.
Ask somebody for help with carrying the server.
Should you discover that the delivery has damages incurred during transport or does not correspond to the delivery note, notify your supplier immediately!

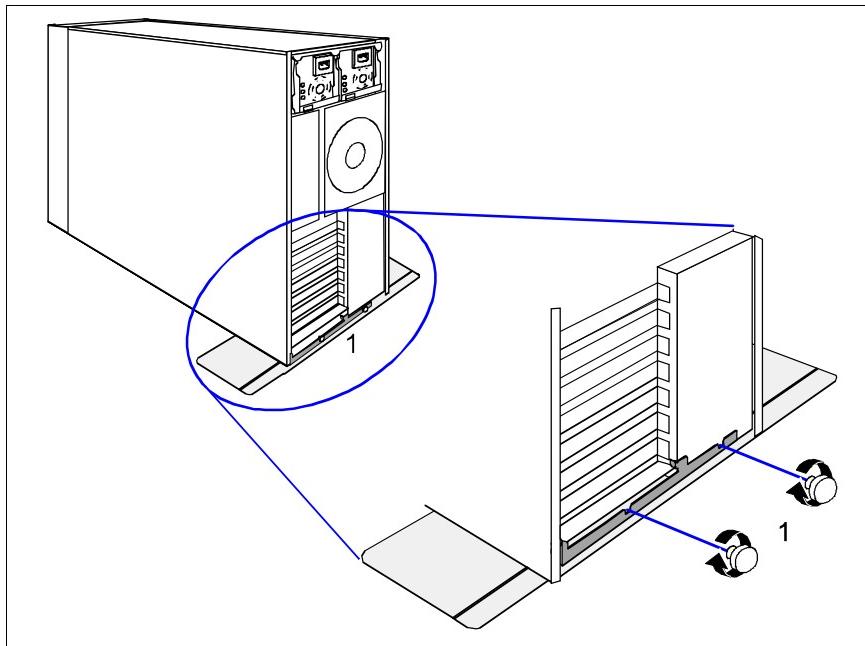
- ▶ Unpack all parts.
- ▶ Carry the server to its installation location.

Mounting the anti-tilt bracket

 For floorstand models with redundant power supply the supplied anti-tilt bracket must be fitted at the rear of the server.

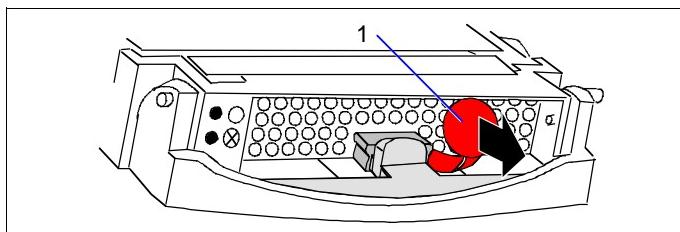


- ▶ Position the server on the anti-tilt bracket so the rubber feet of the server fit into the openings of the bracket (1).



- Fasten the anti-tilt bracket using the two knurled screws (1).

Transportation locks



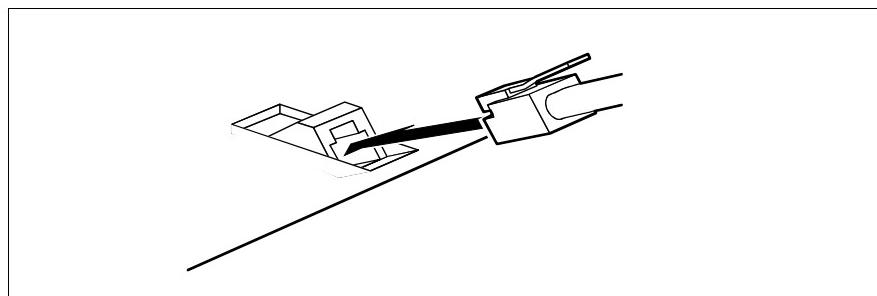
- If the hard disk modules are equipped with transportation locks (1), remove them.

Installation steps floorstand model

- Prepairing the keyboard.
- Installing the hard disk cover.
- Connect the devices to the server in accordance with the configuration.
- Connecting the monitor to the line voltage.
- Connecting the server to the line voltage.
- Routing cables.

Installation steps rack model

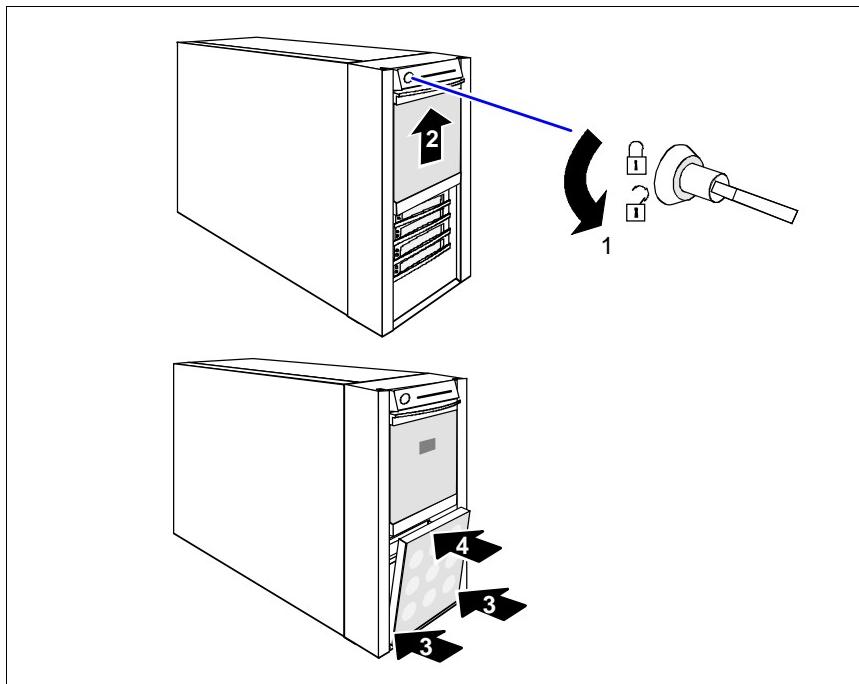
- Mount assembly kit and insert server (see order lists for location diagram prepared with *Rack Architect*) see beginning page 02-TX150S2-141.
- Connect the devices to the server in accordance with the rack configuration.
- Connecting the server to the line voltage.
- Routing cables.

Preparing the keyboard

- ▶ Plug the appropriate connector of the keyboard cable into the socket on the underside of the keyboard as shown in the illustration above.

Installing the hard disk cover

You will find the hard disk cover in a separate cardboard box.



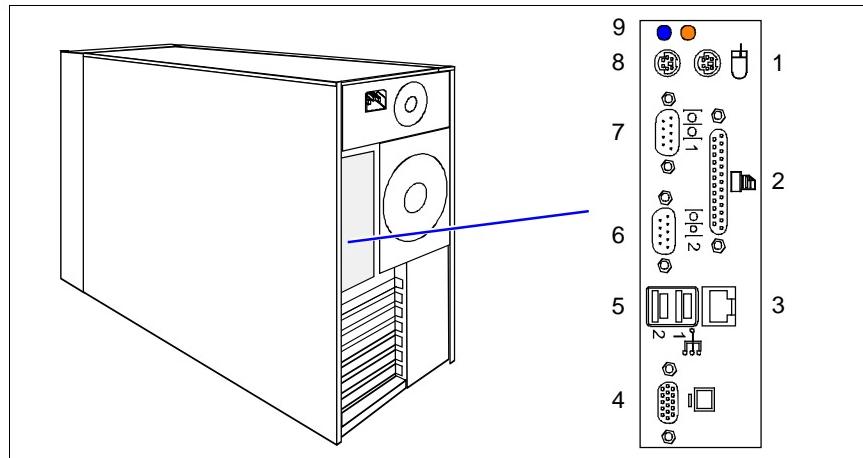
- ▶ Unlock the server (1) and remove the key.
- ▶ Slide up the cover of the accessible drives as far as possible (2).
- ▶ Hook the tabs of the hard disk cover into the recesses (3) and push the top end of the hard disk cover (4) in direction of the arrow until it engages.

Connecting devices to the server

The ports for external devices are on the rear of the server. Which ports are available on your server depend on the PCI boards installed.

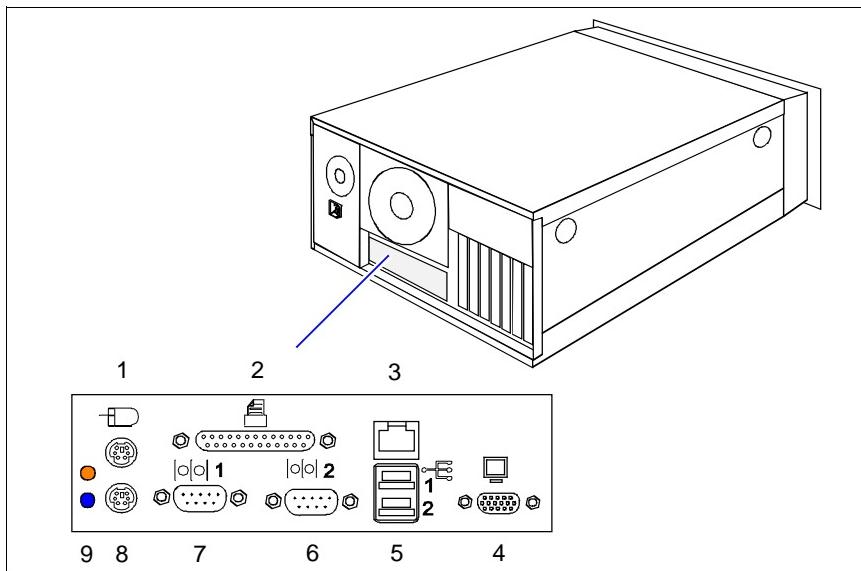
You will find an additional USB port on the front side of the server.

The standard ports are indicated by symbols and by color coding for the connectors.



Floorstand model

1	Mouse port (green)	6	Serial port COM2 (turquoise)
2	Parallel port (burgundy)	7	Serial port COM1 (turquoise)
3	LAN port	8	Keyboard port (purple)
4	Monitor port (blue)	9	LEDs
5	USB port 1 and 2 (black)		



Rack model

1	Mouse port (green)	6	Serial port COM2 (turquoise)
2	Parallel port (burgundy)	7	Serial port COM1 (turquoise)
3	LAN port	8	Keyboard port (purple)
4	Monitor port (blue)	9	LEDs
5	USB port 1 and 2 (black)		

i Some of the devices that you connect require special drivers. See the documentation for the connected device.

- ▶ Connect the data cables at the server and peripherals.

Connecting the monitor to the line voltage

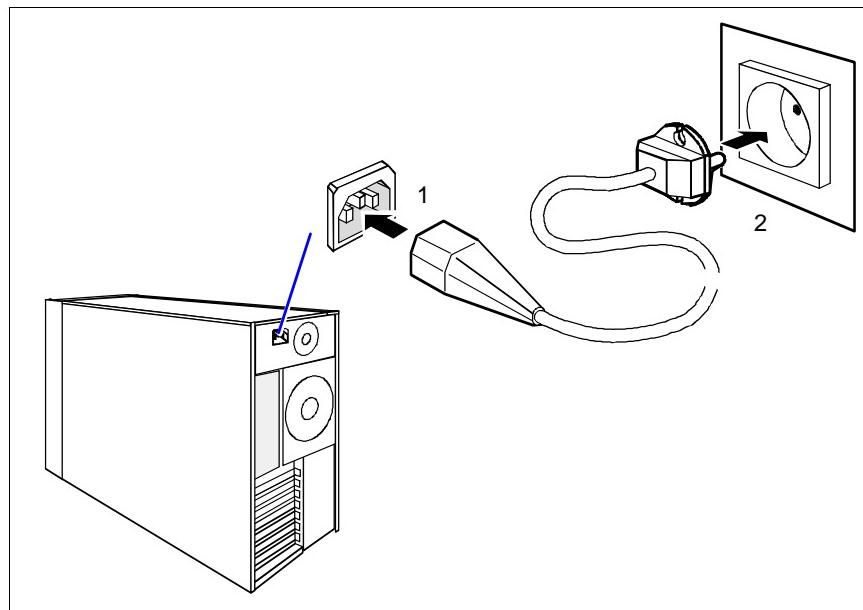
- ▶ Plug the power cord of the monitor into a properly grounded power outlet of the main AC supply circuit.

! The rated current for the monitor can be found on the technical data label on the monitor.

Connecting the server to the line voltage

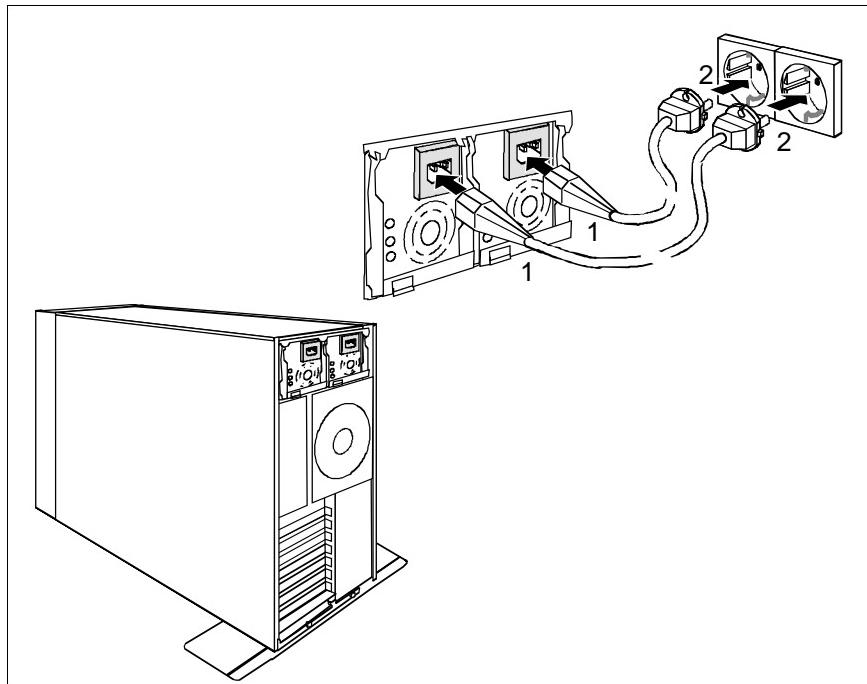
The power supply units automatically adjust to the voltage range from 100 V - 240 V. It is not necessary to switch over the power supply unit.

Standard power supply



- ▶ Plug the delivered power cord into the insulated socket of the server (1) and into a properly grounded power outlet of the main AC supply circuit and/or the rack model into the socket strip of the rack (2) (see also item rack in the service manual, module "System components").

Redundant power supply



- ▶ Connect each power supply module to a grounded power outlet with the power cable supplied (1+2).

You will find the description of the indicators of the power supply module on [page 02-TX150S2-36](#).

If you connect the two power cords to separate power circuits, you can operate the unit with power phase redundancy.

Initial operation and operating

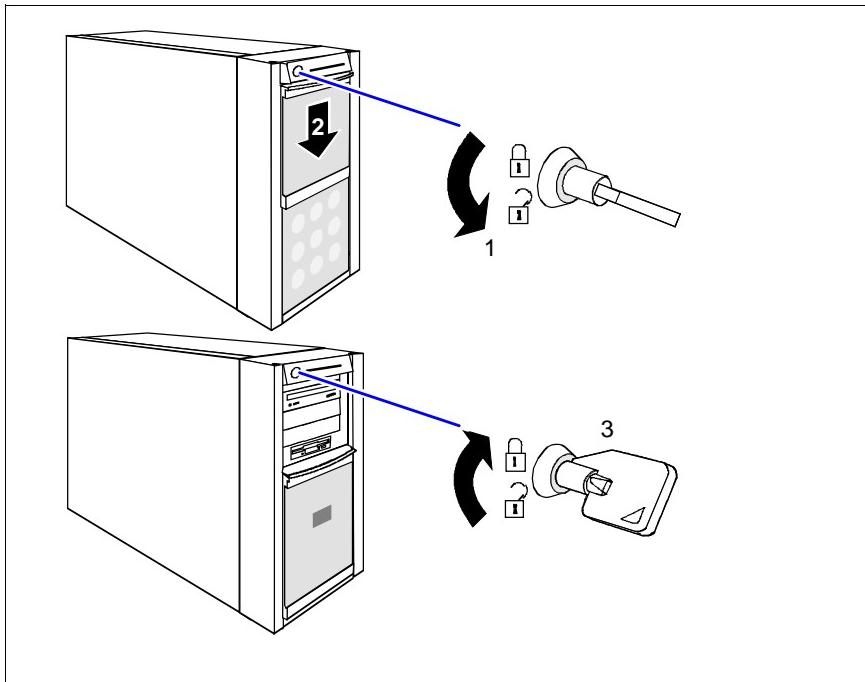


The server must be acclimatized in its operating environment for an acclimatization time.

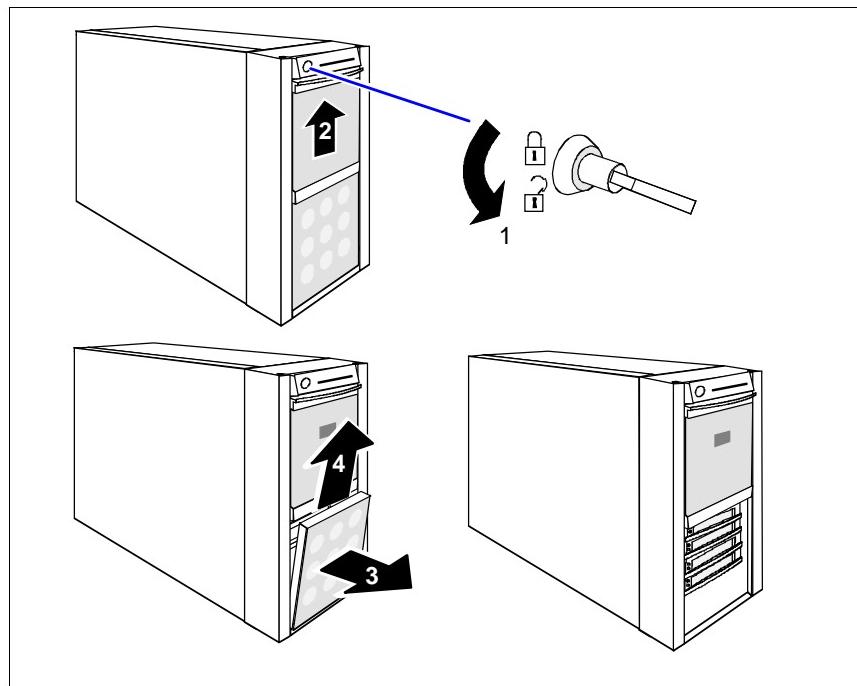
Temperature difference (°C) (operating environment/outside)	Minimum acclimatization time (hours)
5	3
10	5
15	7
20	8
25	9
30	10

Unlocking/locking the floorstand model

For opening and closing of the server you need the delivered key.



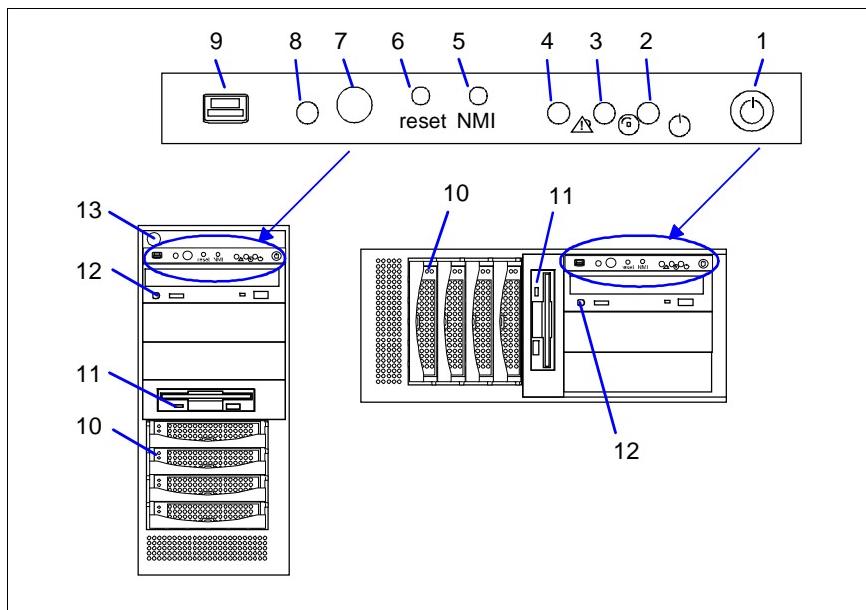
- ▶ Turn the key 90° clockwise (1).
- ▶ Slide the cover of the accessible drives downwards (2).
- ▶ If you wish to prevent access to the hard disk modules, then lock the server again (3). Now the cover of the accessible drives cannot be slid into the top position and the hard disk cover cannot be removed.

Enabling access to the hard disk modules

- ▶ Unlock the server (1).
- ▶ Remove the key.
- ▶ Slide up the cover of the accessible drives as far as possible (2).
- ▶ Remove the hard disk cover toward the front (3 + 4).

The reinstalling of the hard disk cover and the locking of the server is done in reverse order.

Controls and indicators on the front panel



1	ON/OFF button	8	ID indicator
2	Operating status indicator (standby)	9	USB connector
3	Indicator hard disk drive busy	10	Indicators hard disk drive
4	Global Error indicator	11	Indicator floppy disk drive
5	NMI button	12	Indicator CD-ROM/DVD drive/CD burner
6	Reset button	13	Lock (only for floorstand model)
7	ID button (ID=identification)		

Operation controls

	<p>Lock The floorstand model can be locked to unable the access to the drives.</p>
	<p>ON/OFF button When the system is switched off, it can be switched on by pressing the ON/OFF button. When the system is operating, pressing the ON/OFF button will switch it off.</p> <p> The ON/OFF button does not disconnect the server from the line voltage. To completely disconnect the line voltage, unplug the power cable.</p>
NMI	<p>NMI button Pressing the NMI button starts an non-maskable interrupt. The NMI button can only be activated with a pointed object (eg. bent paperclip).</p>
reset	<p>Reset button Pressing the reset button restarts the System via BIOS. The reset button can only be activated with a pointed object (eg. bent paperclip).</p>
ID	<p>ID button (localize) Pressing the ID button lights up the integrated ID indicator on the front and the ID indicator on the rear side of the server. The two ID indicators are synchronized.</p>

Indicators on the front panel

	<p>Operating status indicator (bicolor) Lights orange when the server is switched off but it is connected to line voltage (standby mode). Lights green when the server is switched on.</p>
	<p>Drive busy indicator (green) Lights green when drives connected to the SCSI onboard controller are being accessed (SCSI hard disk drive or backup drive).</p>

	<p>Global Error indicator (orange)</p> <p>Is dark, when the system is OK. No critical event or event indicating service requirement has occurred.</p> <p>Blinks orange, when a critical event has occurred or a pre-failure event has been detected. Users can check BIOS setup, system and event log for event details or use <i>ServerView</i>. The indicator blinks also in standby mode.</p> <p>Lights orange, when a prefailure event has been detected. Users can check system and event log for event details or use <i>ServerView</i>. The indicator lights also in standby mode.</p> <p>After power-off the indicator is activated after a reload if the event is still critical.</p>
ID	<p>ID indicator (blue)</p> <p>Lights up blue when the system has been selected by pressing the ID button. To deactivate, press again the ID button.</p> <p>The indicator can be selected also via <i>ServerView</i> and his status is also reported to <i>ServerView</i>.</p>

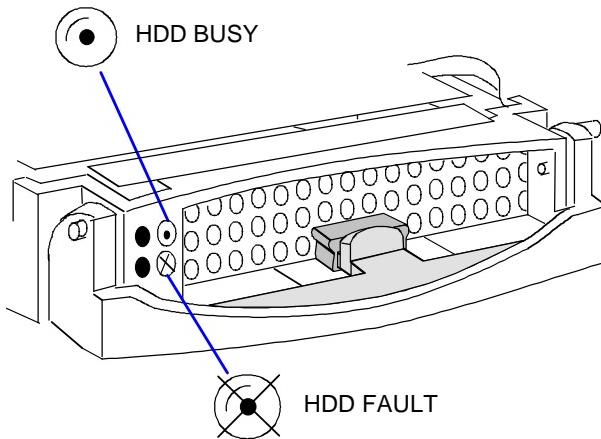
Indicators on the drives

CD-ROM/DVD drive/CD burner indicator

lights green when the drive is being accessed.

Floppy disk drive indicator

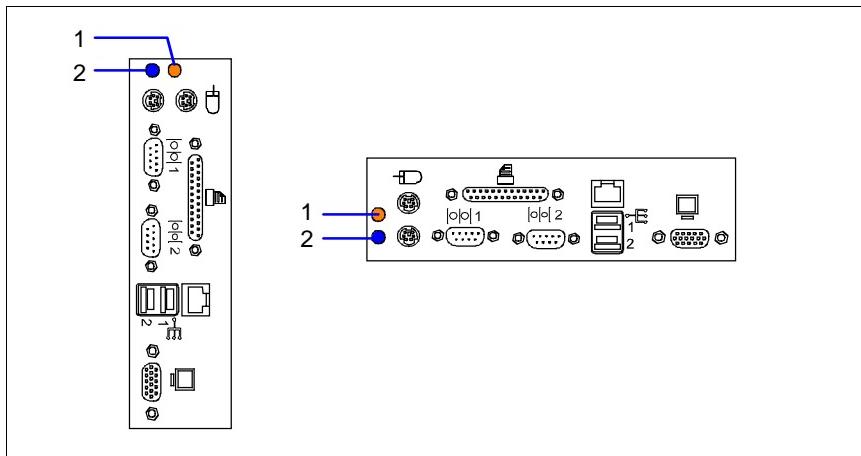
lights green when the floppy disk drive is being accessed.

Hard disk drive indicator

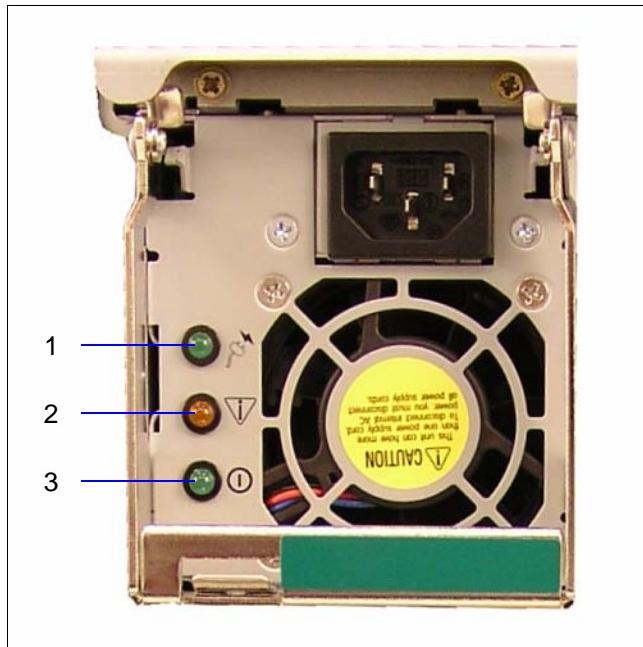
	Hard disk drive active HDD BUSY <ul style="list-style-type: none">- lights green: HDD in active phase- remains dark: HDD inactive
	Drive error HDD FAULT (only in conjunction with a RAID controller) <ul style="list-style-type: none">- does not light: No HDD error- lights orange: HDD Faulty oder Rebuild Stopped (drive defective / needs replacing, a rebuild process was stopped or the HDD module is not correctly inserted)- slow blink: HDD Rebuild (a rebuild is carried out by the RAID controller after replacing a hard disk drive)- fast blink: HDD Identify- four fast blinks/pause: HDD Predicted Fault (not relevant for the Promise-TX4 SATA RAID controller)- two fast blinks/pause: HDD hot-spare (hot-spare drive active. The corresponding drive has failed) (not relevant for the Promise-TX4 SATA RAID controller)

Indicators on the rear

Indicator on the connector panel



1	<p>Global Error indicator (orange)</p> <p>Is dark, when the system is OK. No critical event or event indicating service requirement has occurred.</p> <p>Blinks orange, when a critical event has occurred or a pre-failure event has been detected. Users can check BIOS setup, system and event log for event details or use <i>ServerView</i>. The indicator blinks also in standby mode.</p> <p>Lights orange, when a prefailure event has been detected. Users can check system and event log for event details or use <i>ServerView</i>. The indicator lights also in standby mode.</p> <p>After power-off the indicator is activated after a reload if the event is still critical.</p>
2	<p>ID indicator (blue)</p> <p>Pressing the ID button lights up the integrated ID indicator on the front and the ID indicator on the rear side of the server. The two ID indicators are synchronized.</p> <p>Lights up blue when the system has been selected by pressing the ID button. To deactivate, press again the ID button.</p> <p>The indicator can be selected also via <i>ServerView</i> and his status is also reported to <i>ServerView</i>.</p>

Indicators on the hot-plug power supply modules

1	AC OK indicator (green)
2	FAIL indicator (orange)
3	Power Good indicator (green)

AC OK	FAIL	Power Good	Meaning
Off	Off	Off	No AC power to all power supply modules or no AC power to this power supply module only.
On	Off	Blinking	AC present / standby output on
On	Off	On	Power supply DC outputs on and ok
On	On	Off	Power supply failure

Switching the server on and off



When after the switching on of the server only flickering stripes are displayed on the screen, switch off the server immediately. See also page 02-TX150S2-70.

The ON/OFF button does not disconnect the server from the line voltage. To disconnect the line voltage completely, unplug the power plug.

Switching on

The power-on indicator lights orange (standby mode).

- ▶ Press the ON/OFF button on the front side of the device.

First system installation

Insert the *ServerStart* CD and any available floppy configuration disk, and restart the device. Make the configuration of the Server with *ServerStart*.

Operating system already installed

The server is switched on, performs a system test and boots the operating system.

Please note that the memory size displayed during the system test varies according to the PCI slot equipment.

Switching off

The power-on indicator lights green.

- ▶ Shut down the operating system.
- ▶ Press for a short time the ON/OFF button on the front side of the server. The server switches OFF and goes to standby mode. The power-on indicator lights orange.



If the server cannot be switched off by this, an error has occurred in the server. By pressing the ON/OFF button longer than four seconds the server will be switched off in any case (power button override).

Other power ON/OFF possibilities

In addition to using the ON/OFF button, the server can also be switched ON/OFF as follows:

- **Specified switch-on/switch-off time**

With *ServerView* it is possible to set a particular time, at which the server will be switched on or off.

- **Modem signal (ring indicator)**

The server is switched ON via an internal or external modem.

- **Wake On LAN (WOL)**

The server is switched ON by a command via the LAN (Magic Package).

- **After a power failure**

The server automatically switches ON following a power failure (depending of the settings in the BIOS).

- **Power button override function**

You can switch off the system by pressing the ON/OFF button about 4-5 seconds.



This may cause data to be lost!

- **IPMI**

The server is switched ON by an IPMI console via COM1 or RJ45.

Configuration of the server

This section contains information about configuring the server and installing the operating system.

- i** Make sure that the energy saving functions are disabled in the *BIOS-Setup* during server operation.

SCSI RAID controller configuration

The server is equipped with an onboard SCSI controller with „Integrated Mirroring“ functionality. You may configure the SCSI RAID controller either before running *ServerStart* or with *ServerStart*. It is recommended to use *ServerStart*.

Configuring the SCSI RAID controller is either performed via the BIOS configuration utility (calling CTRL-C during BIOS POST) or with the *ServerStart* CD using *GAM* (Global Array Management). You will find further information in the controller documentation on the ServerBooks CD in section „controllers“.

- i** *SCSI-ID* information:
Please note that the SCSI IDs for the hard disk modules are predefined (see [page 02-TX150S2-63](#)).

Activating the hard disk write cache

By default, the hard disk write cache is disabled (off). This presetting may be changed. Consequently, not every data modification in main memory is written to disk immediately, thus boosting system performance during write operations.

- !** When a power failure occurs with **enabled** write cache, **data** may be **lost!**

- i** The hard disk write cache should always be configured in the same way for all disk drives.

- ▶ While the server is booting (POST), press CTRL-M
- ▶ Select *Objects*
- ▶ Select *Physical Drive*
- ▶ Select *PORT #0*
- ▶ Select *Write Cache = On*

- ▶ Press ESC
- ▶ Select *PORT #1*
- ▶ Select *Write Cache = On*

SATA RAID controller configuration

You may configure the SATA RAID controller either before running *ServerStart* or with *ServerStart*. It is recommended to use *ServerStart*.

Configuring the SATA RAID controller is either performed via the BIOS configuration utility (calling CTRL-F during BIOS POST) or with the *ServerStart* CD using *PAM* (Promise Array Management). More information is contained in the „FastTrak S150 TX4 User Manual“ on the ServerBooks CD in section „controllers“.

Activating the hard disk write cache

By default, the hard disk write cache is disabled. This presetting may be changed. Consequently, not every data modification in main memory is written to disk immediately, thus boosting system performance during write operations.

 When a power failure occurs with **enabled** write cache, **data** may be **lost!**

i The hard disk write cache should always be configured in the same way for all disk drives.

The hard disk write cache may only be enabled via *PAM*.

- ▶ Choose the controller options via *PAM* and select *Disk Parameters*.
- ▶ Deactivate the check box *Disable Hard Disk Write Cache*.

You will find further information in the SATA RAID controller manual „Promise Array Management (PAM) for FastTrak S150 TX2plus, S150 TX4 and TX4000 User Manual“.

Configuration with ServerStart

With the *ServerStart* CD provided, you can configure the server and install the operating system in a convenient manner.

-  Descriptions of operating systems not covered in the RAID controller manual are provided in the appropriate readme files on the driver diskettes.
- SCSI hard disks:
The menu-guided configuration includes the server configuration with the *SCU* and the SCSI RAID controller configuration with the *GAM* (Global Array Manager).
- SATA hard disks:
The menu-guided configuration includes the server configuration with the *SCU* and the SATA RAID controller configuration with the *PAM* (Promise Array Manager).

To find out how to operate *ServerStart* and for further information, refer to the corresponding *ServerStart* manual.

Configuration without ServerStart

Configuring the SCSI RAID controller (SCSI hard disks)

See [page 02-TX150S2-39](#).

Configuring the SATA RAID controller (SATA hard disks)

See [page 02-TX150S2-40](#).

Installing the operating system

- ▶ Insert the installation disk and the CD of the operating system you want to install.
- ▶ Reboot the server.
- ▶ Follow the instructions on the screen and in the manual for the operating system.

Please read how to install the desired operating system in the related RAID controller manual.

Activate RemoteView

To be able to start the remote monitoring and diagnostics system *RemoteView* automatically, you have to enter the disk parameters in the *BIOS setup* and boot one time from the *RemoteView* medium (chipDISK).

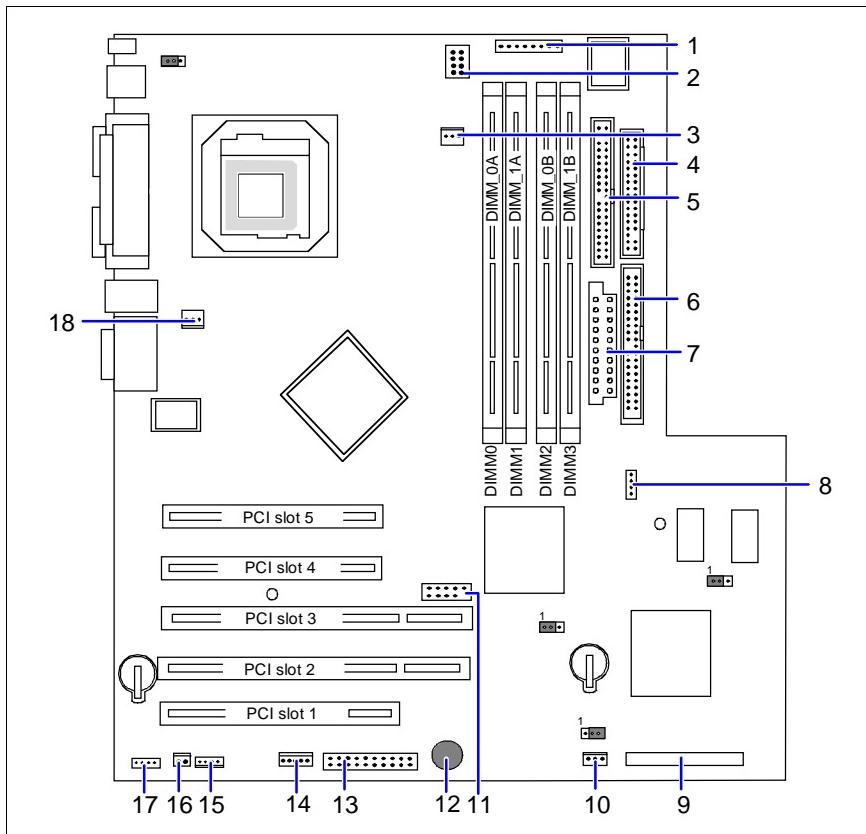
You find the description how to proceed under 'Configuring the chipDISK' on page 02-TX150S2-101.

For more details on the operation of *RemoteView*, please refer to module "Diagnostics" of the service manual.

Settings

System board D1751

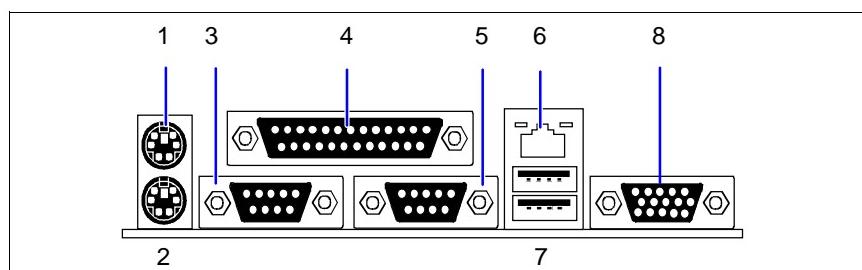
Interfaces and connectors



No.	Print	Connector
1	PC98	Power control connector / PS connector P9
2	ATX 12 V1	CPU power supply (ATX) (+12V) / PS connector P8
3	CPU_FAN1	Processor fan

No.	Print	Connector
4	Floppy	Floppy disk drive
5	SEC_IDE	IDE drive (secondary)
6	PRI_IDE	IDE drive (primary)
7	ATX POWER	Power supply (ATX) / PS connector P1
8	SMB1	I ² C bus connector for IDTEMP Combo
9	SCSI 320	SCSI connector for accessible drives
10	Intrusion	Intrusion detection
11	USB3&4	USB connector for front side USB
12	Buzzer1	Onboard speaker
13	Frontpanel	Connector for operating panel board
14	RSB LP Power	Not used
15	IPMB1	RSBS2 data
16	RSB Power	Not used
17	HD-ACTIVITY	HD-LED connector for RAID controller
18	CHA_FAN1	System fan

External ports



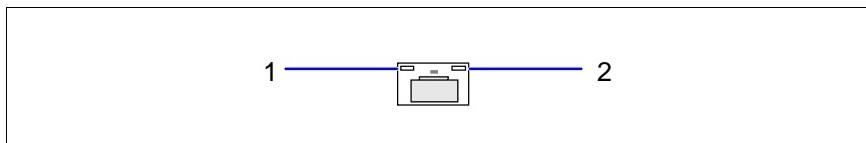
1	PS/2 mouse port	5	Serial port 2 (COM2)
2	PS/2 keyboard port	6	LAN port (onboard)
3	Serial port 1 (COM1)	7	USB port 1 and 2
4	Parallel port LPT1	8	Monitor port

LAN connector

The system board has an Intel 82547EM Gigabit LAN controller. The LAN controller supports transmission rates of 10 Mbit/s, 100 Mbit/s and 1 Gbit/s. The LAN controller is equipped with a transmission and receiving buffer (FIFO) and supports WOL function through Magic Packet™.

It is also possible to boot a device without its own boot hard disk via LAN. Here Intel PXE is supported.

The LAN RJ45 connector is equipped with a yellow and a green LED (light emitting diode). This LEDs are integrated into the LAN connector socket.



1	Green indicator	2	Yellow/green indicator
---	-----------------	---	------------------------

LED 1 (left)

LNK	Lights green	The adapter is connected to a valid link partner
	Off	No link
ACT	Flashes green	Data is being transmitted or received

LED 2 (right)

10/100/1000	Off	10 Mbit/s
	Green	100 Mbit/s
	Yellow	1000 Mbit/s

Temperature/system monitoring

Temperature and system monitoring aim to reliably protect the computer hardware against damage caused by overheating. In addition, any unnecessary noise is also prevented by reducing the fan speed, and information is provided about the system status. Intrusion detection protects the system from opening.

The following functions are supported:

Temperature monitoring

Measurement of the processor temperature, measurement of the system temperature with two onboard temperature sensors, measurement of the ambient temperature with an external temperature sensor.

Fan monitoring

Fans that are no longer available, blocked or sticking fans are detected.

Sensor monitoring

The removal of, or a fault in, a temperature sensor is detected. Should this happen all fans monitored by this sensor run at maximum speed, to achieve the greatest possible protection of the hardware.

Intrusion detection

Opening of the cover is detected, even when the system is switched off (5V standby voltage is required) . However, this will only be indicated when the system is switched on again.

ISA bus resources

Device	IRQ	Address	DMA
Keyboard	1	060, 064	
Serial port COM2	3	03F8, 02F8 , 03E8, 02E8	
Serial port COM1	4	03F8 , 02F8, 03E8, 02E8	
	5		
Floppy disk drive controller	6	03F0-3F5, 3F7	2
Parallel port LPT1	7	0278, 0378, 03BC	0, 1, 3
Real-time clock (RTC)	8	070-071	
free	9, 10, 11		
Mouse controller	12		
Numeric processor	13	0F0-0FE	
IDE controller	14	1F0-1F7	
free	15		

"IRQ" = interrupt assigned as shipped

"Address" = this address can be used for your particular device

"Address" = this DMA can be used for your particular device

Default settings are shown in bold print.

PCI bus resources

PCI slots

PCI slot	64 bit/ 32 bit	Bus frequency	Description
1	32 bit	33 MHz / 5 V	32 bit PCI bus slot
2	64 bit	66 MHz / 3.3 V	64 bit PCI bus slot
3	64 bit	66 MHz / 3.3 V	64 bit PCI bus slot
4	32 bit	33 MHz / 5 V	32 bit PCI bus slot
5	32 bit	33 MHz / 5 V	32 bit PCI bus slot

PCI IRQ Line x - assignment of the PCI interrupts

PCI IRQ Line x defines which ISA interrupts are used for the separate PCI slots. If you select *Auto* in the BIOS setup, the interrupts are assigned automatically and no further settings are required.

Multifunctional PCI boards or boards with an integrated PCI-to-PCI bridge can use several PCI interrupts (INTA#, INTB#, INTC#, INTD#). Monofunctional PCI boards (default) only use one PCI interrupt (INTA#) per PCI slot.

The PCI interrupts INTA#, INTB#, INTC# and INTD# are available for every PCI slot.

The same interrupt can be assigned simultaneously to several PCI boards. You should avoid this condition due to reduced performance.

If you use a setting other than *Auto*, the Plug&Play functionality of the system BIOS for the corresponding PCI boards is deactivated.

Auto The PCI interrupts are assigned automatically in accordance with the Plug&Play guidelines.

Disabled No ISA interrupt is assigned to the PCI interrupt.

3, 4, 5, 7, 10, 11, 12, 14, 15

The selected ISA interrupt is assigned to the PCI interrupt. You may not select an ISA interrupt that is used by a component on the system board (e.g. controller) or an ISA board.

	A	B	C	D	E	F	G	H	PXIRQ0	PXIRQ1	PXIRQ2	PXIRQ3
Slot 1	A	B	C	D	-	-	-	-	-	-	-	-
Slot 2	-	-	-	-	-	-	-	-	C	D	A	B
Slot 3	-	-	-	-	-	-	-	-	B	C	D	A
Slot 4	D	A	B	C	-	-	-	-	-	-	-	-
Slot 5	C	D	A	B	-	-	-	-	-	-	-	-
USB controller HC0	A	-	-	-	-	-	-	-	-	-	-	-
USB controller HC1	-	-	-	A	-	-	-	-	-	-	-	-
USB 2.0 controller	-	-	-	-	-	-	-	A	-	-	-	-
LAN controller **	-	-	A	-	-	-	-	-	-	-	-	-
VGA controller	-	-	-	-	A	-	-	-	-	-	-	-
Promise controller ***	-	-	-	-	-	-	-	-	-	A	-	-
SCSI controller	-	-	-	-	-	-	-	-	A	-	-	-
IDE controller (P-ATA)					A							
Serial ATA controller					A							

A...D = Interrupt output of the PCI controller

* : Interrupts of SCSI channel A respektive B

** : LAN interrupts are not PCI-specific

*** : onboard SATA controller, if installed

Screen resolutions

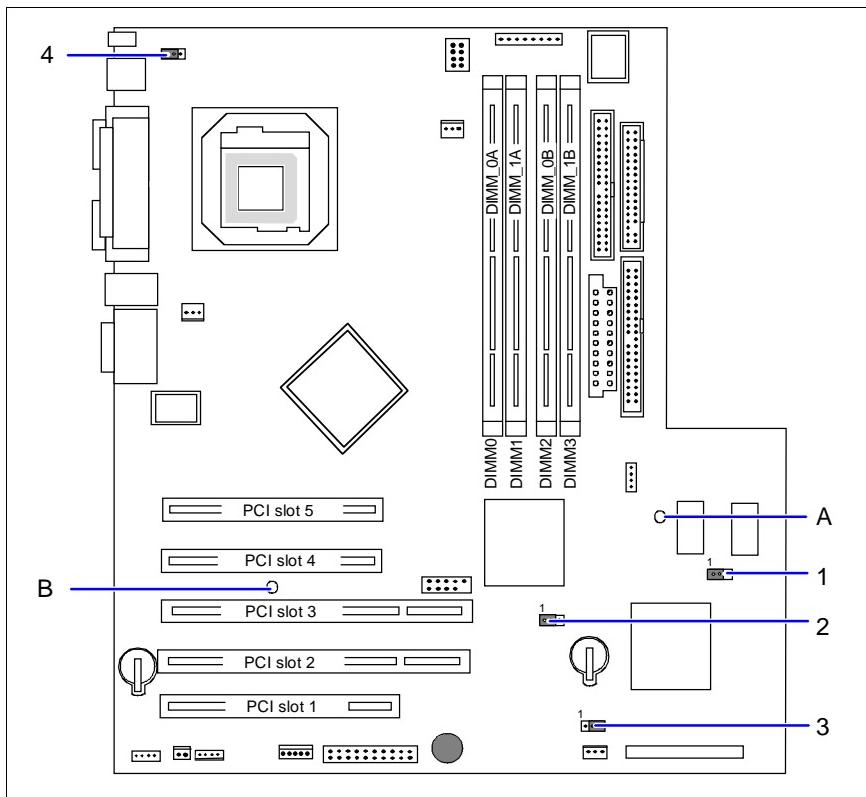
Depending on the operating system used the screen resolutions in the following table refer to the graphic controller on the system board. If you are using an external graphic controller, you will find details of supported screen resolutions in the Operating Manual or Technical Manual supplied with the controller.

Screen resolution	Refresh rate (Hz)	Maximum number of colors
640x480	200	16.7 Mio.
800x600	200	16.7 Mio.
1024x768	150	16.7 Mio.
1152x864	120	16.7 Mio.
1280x1024	100	16.7 Mio.

Processor's clock speed

The clock frequency of the processor is set automatically. It cannot be changed manually.

Jumper and LEDs

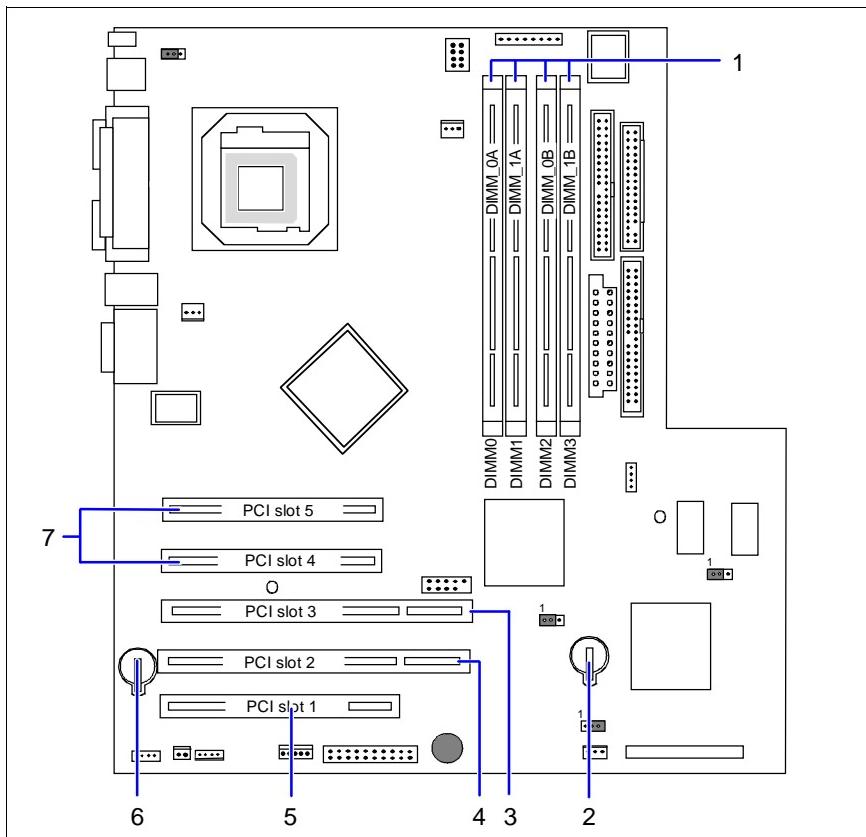


No.	Jumper	Function
1	BIOSREC	<p>This jumper enables recovery of the old system BIOS after an attempt to update has failed.</p> <p>1-2 : (default) the system starts with the BIOS from the system board.</p> <p>2-3 : the system starts from the "Flash BIOS" diskette in drive A and allows a BIOS recovery.</p>

No.	Jumper	Function
2	CLRTC1	<p>This jumper allows you to clear the real-time clock (Real Time Clock) and the CMOS-RAM.</p> <p>1-2 : (default) normal operation. CMOS-RAM + RTC are connected to the lithium battery.</p> <p>2-3 : CMOS-RAM + RTC will be deleted.</p>
3	SCSI_EN1	<p>This jumper allows you to enable or disable the LSI 1020 64-bit PCI-X SCSI controller.</p> <p>1-2 : (default) The LSI 1020 64-bit PCI-X SCSI controller has been activated.</p> <p>2-3 : The LSI 1020 64-bit PCI-X SCSI controller has been deactivated.</p>
4	KBPWR1	<p>This jumper allows you to chose the operating voltage of the keyboard.</p> <p>1-2 : (default) +5V</p> <p>2-3 : +5V stand-by</p>

No.	LED	Description
A	LED1	<p>On: Initialisation of the BMC after voltage is available, duration 10-15 seconds</p> <p>Flashes: BMC okay</p> <p>If the LED still lights or remains dark after initialisation, an error has occurred.</p>
B	SBPWR1	<p>On: 5V stand-by</p> <p>Off: No voltage</p>

Add-on modules



1	Locations for main memory	5	PCI slot 32bit / 33MHz
2	Lithium battery (3V)	5	Lithium battery (3V)
3	PCI slot 64bit / 66MHz	7	PCI slots 32bit / 33MHz
4	PCI slot 64bit / 66MHz, ZCR		



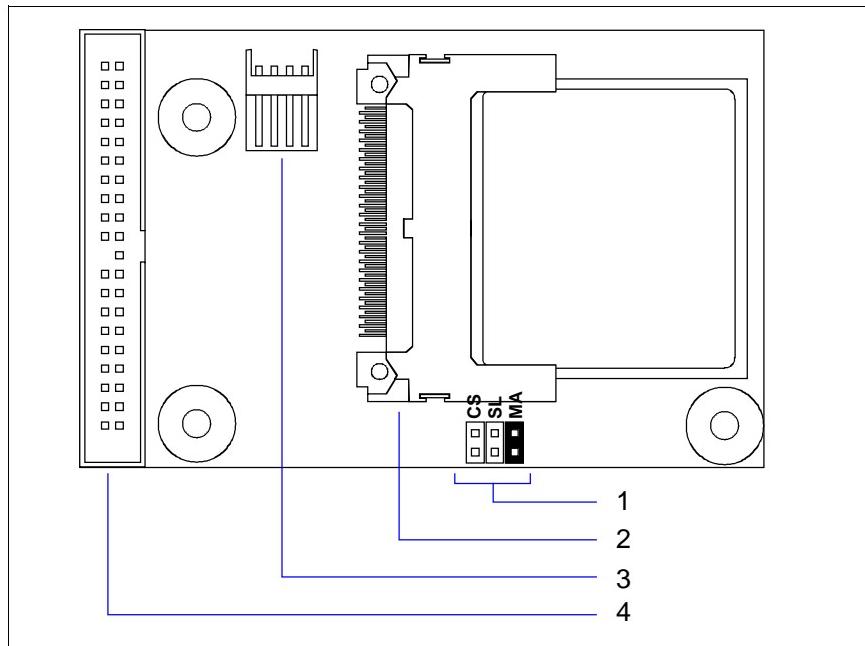
For RSBS2 with or without accu pack use slot PCI slot 1, 4 or 5.

You find the slot sequence for main memory on [page 02-TX150S2-108](#).

RemoteView-chipDISK

Board: Compactflash Adapter BP0:009-1

Compactflash™ card: SanDisk 32 MB



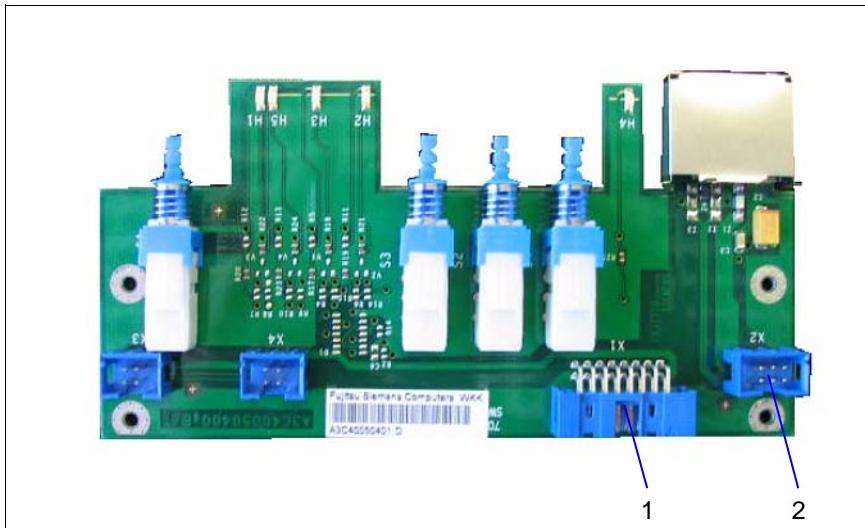
1	Jumper block CS = Cable detected Mode (Assignment depends on other devices on this data line) SL = Slave Mode (second device on this data line) MA = Master Mode (first device on this data line) The system is delivered with the jumper set for master mode.
2	Compactflash™ card
3	Connector for the power supply
4	Connector for the data lines



Installing the RemoteView chipDisk in the PRIMERGY TX150S2 server,
the jumper is set from MA to **CS**.

Operating panel board

Part number: A3C40050401



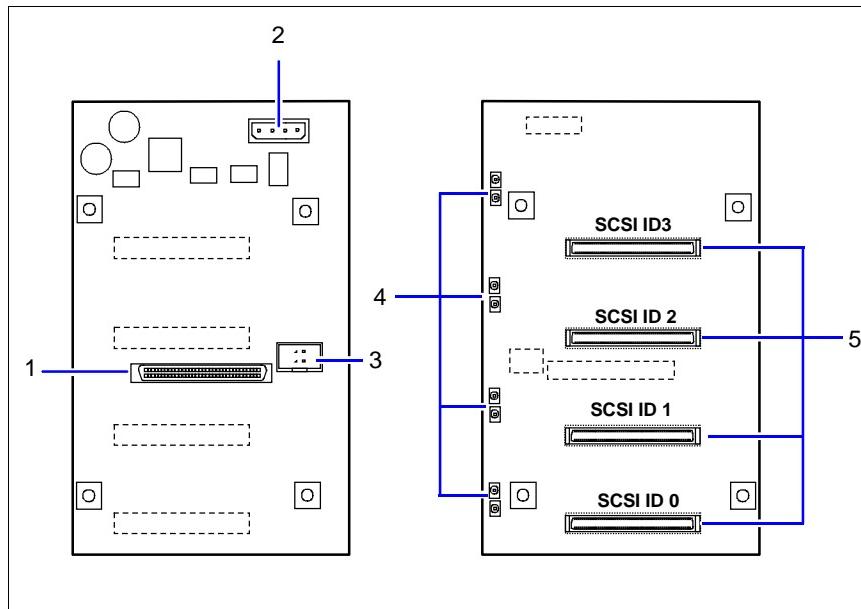
1	Connector for operating panel cable
2	USB connector

i The operating panel board is included in the spare part „operating panel module“ (C26361-K644-Z330).

SCSI backplane

Part number: A3C40020516

You find the SCSI backplane with 4 slots for hard disk modules on the hard disk cage. The termination is done by the SCSI backplane.



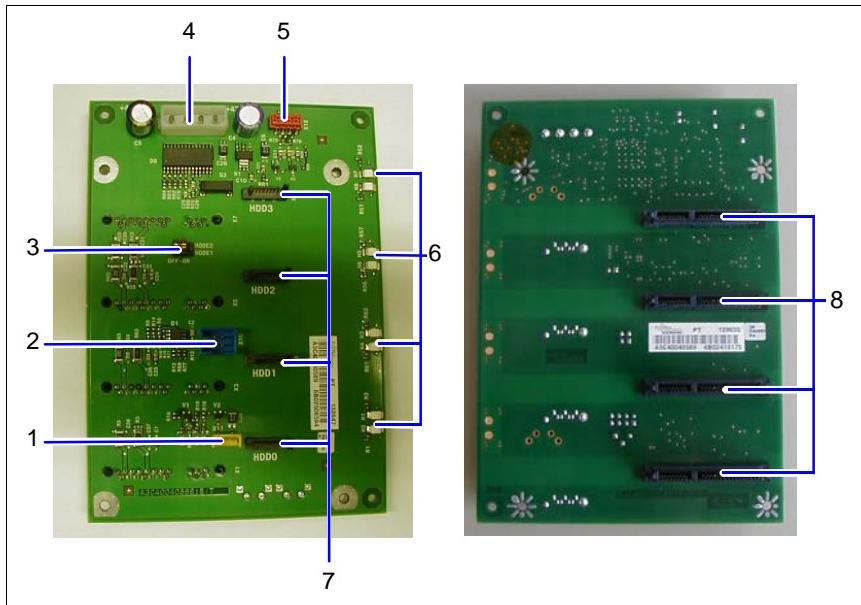
1	X5 SCSI input connector	4	LEDs
2	X6 Power connector	5	SCA connectors (ID0 up to ID3)
3	X7 SMB connector (i ² C bus)		

The LEDs are made visible at the front side of the mounting frames via light conductors, which are situated at the mounting frames of the drives.

SATA backplane

Part number: A3C40040589

You will find the SATA backplane with 4 slots for SATA hard disk modules located on the hard disk cage.

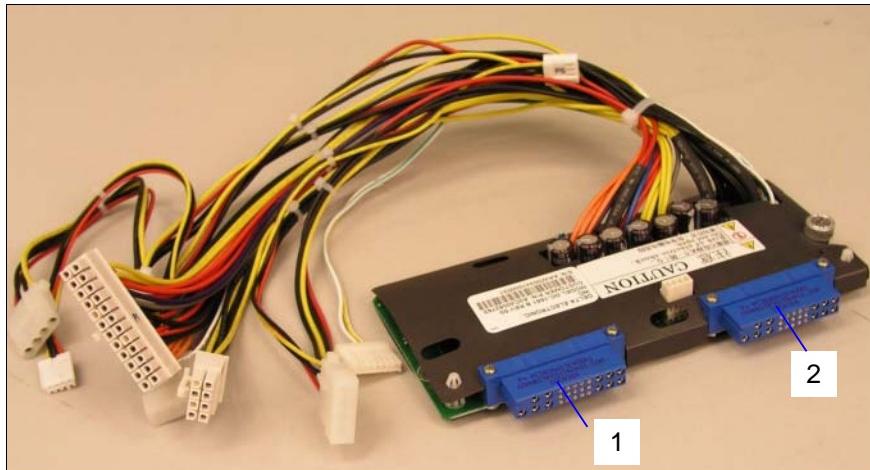


1	I ² C bus connector (X11)	5	not used (Program connector)
2	SMB connector (I ² C bus, X10)	6	LEDs
3	Jumper FW Run (X13) jumper is not set	7	Connectors to SATA controller (HDD0 - HDD3)
4	Connector power supply (X9)	8	SATA connectors for hard disk drives

The LEDs are made visible on the front side of the mounting frames via light conductors, which are situated at the mounting frames of the drives. The signal of the LEDs is the same as for SCSI hard disk drives. The controlling of the LEDs does only work if a driver has been loaded.

Power backplane

Part number: A3C40052762



1	Connector power supply module 1
2	Connector power supply module 2

Internal cabling



The Pn numbers of the power cables are identic for the standard and the redundant power supply. You will not find a special drawing for the power supply cabling.

SCSI version

1-channel SCSI version with onboard SCSI controller / HostRAID

In the basic version the tape drives and the four internal hard disk drives are connected to the onboard SCSI controller via one SCSI cable. The HostRAID function can also be used with this cabling.

1-channel SCSI version with additional SCSI RAID controller

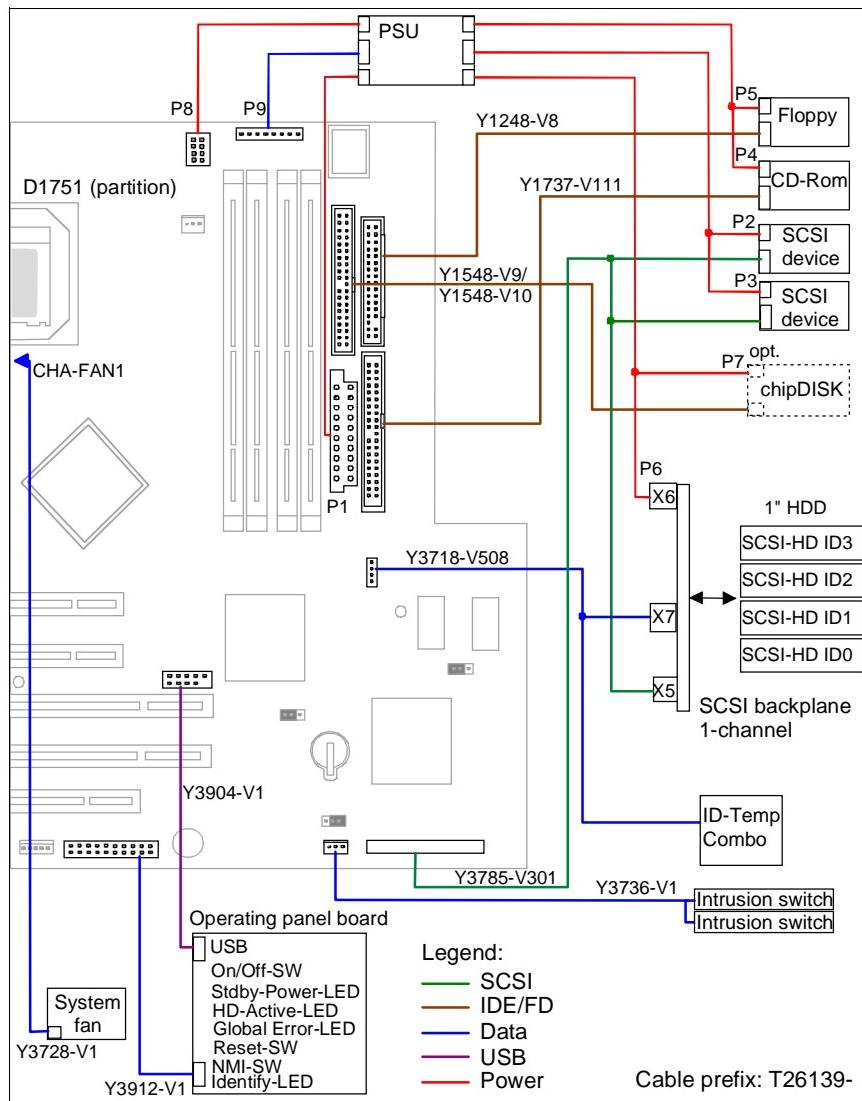
A SCSI RAID controller is installed into a PCI slot and connected with the four internal hard disk drives.

In this case, the connection to the onboard SCSI controller must be changed to the RAID controller. The accessible drives must be unplugged from this SCSI cable.

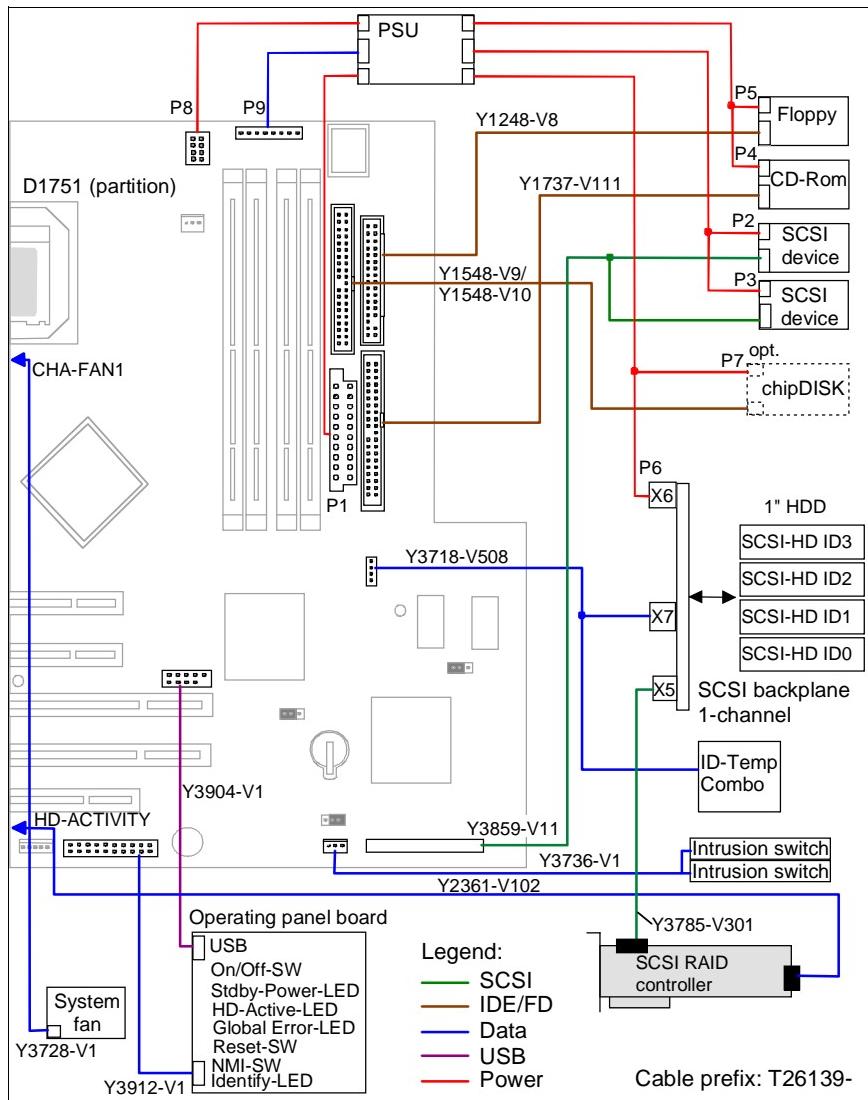
After this the accessible drives can be connected to the onboard SCSI controller via an additional SCSI cable.

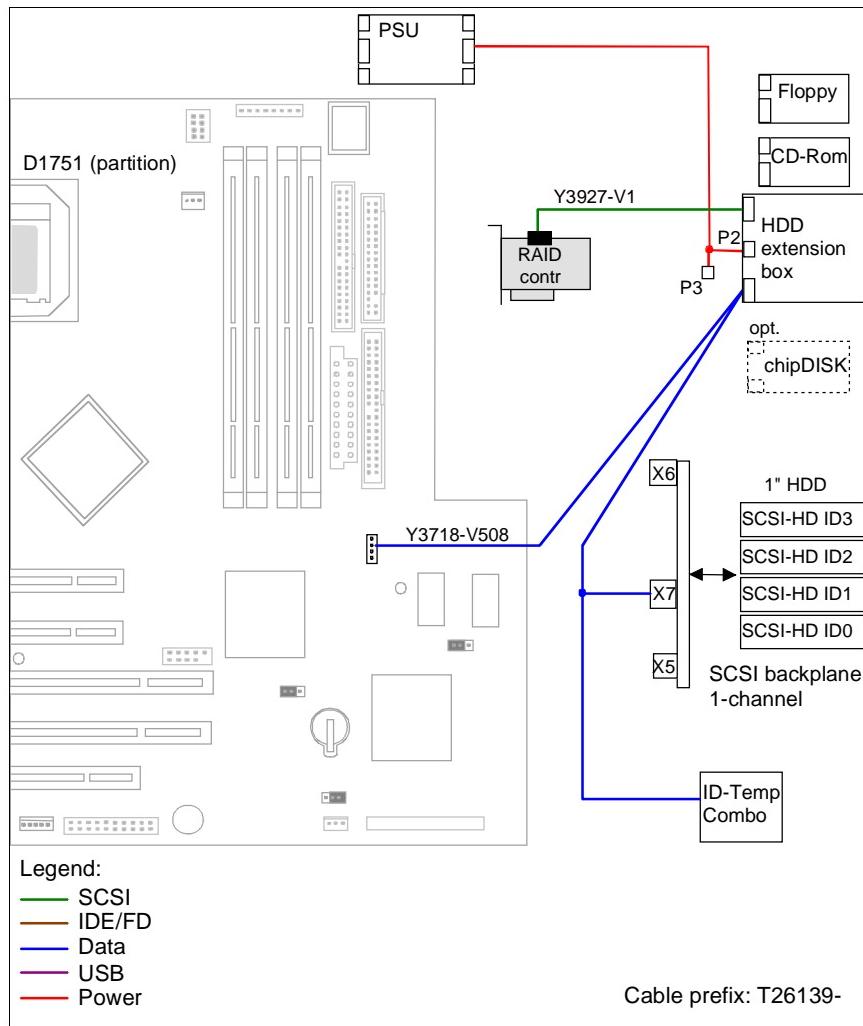
Supplementary channels of the RAID controller are available for external hard disk drive systems.

Cabling with onboard SCSI controller



Cabling with additional SCSI RAID controller

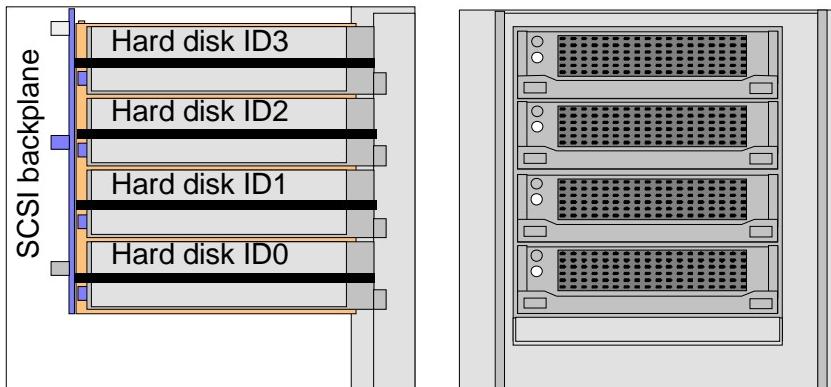


Cabling HDD extension box

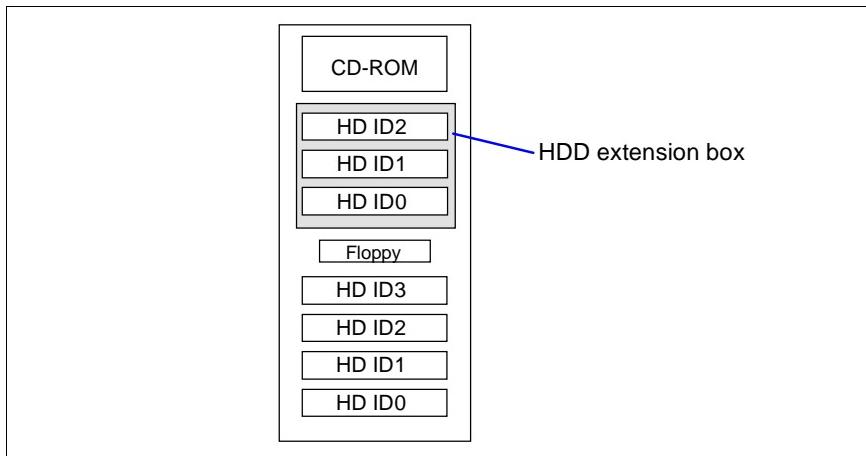
Addresses for SCSI devices

Each device which is connected to the SCSI interface or to a SCSI controller (hard disks and other drives) must have an unambiguous address. The address is called ID (identifier). When connecting drives, make sure, that no ID is assigned more than once.

On the SCA hard disks, the IDs needn't to be set. For each hard disk bay a corresponding ID is determined by hardware (SCSI backplane). It is not possible to change this IDs.

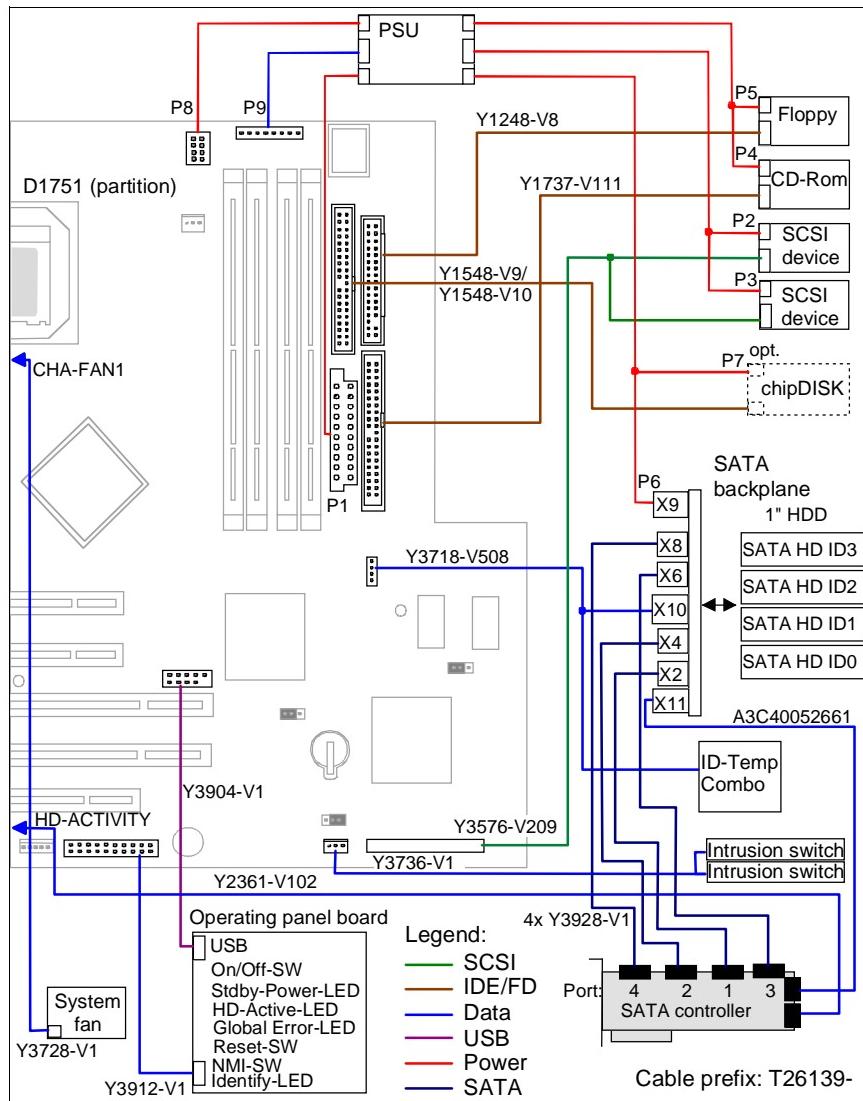


SCSI addresses with HDD extension box:



SATA version

Cabling with an additional SATA controller



Cable overview

The following cables are used in the PRIMERGY TX150S2 systems:

Part number	Name	Description
Basic cabling		
T26139-Y3912-V1	Operating panel cable	Connecting operating panel board to system board (Frontpanel)
T26139 Y3718-V508	I ² C bus cable	Connecting IDTEMP combo to system board (SMB1)
T26139-Y3904-V1	USB cable	Connecting USB connector on operating panel board to system board (USB3&4)
T26139-Y3736-V1	Intrusion cable	Connecting intrusion switches to system board (Intrusion)
T26139-Y3728-V1	Fan adapter cable	Connecting system fan to system board (CHA_FAN1)
T26139-Y1248-V8	Floppy disk cable	Connecting floppy disk drive to system board (Floppy)
T26139-Y1737-V111	ATAPI CDROM cable	Connecting ATAPI CDROM to IDE1 port on system board (PRI_IDE)
T26139-Y3785-V301	SCSI cable	Connecting internal SCSI drives (accessible drives and SCSI backplane) to system board (SCSI 320); cabling onboard SCSI controller or connecting SCSI backplane to SCSI controller; cabling add-on SCSI controller
Option backup SCSI		
T26139-Y3859-V11	SCSI cable	Connecting SCSI accessible drives to system board (SCSI 320); cabling add-on SCSI controller
T26139-Y3576-V209	SCSI cable	Connecting SCSI accessible drives to system board (SCSI 320); cabling add-on SATA controller

Part number	Name	Description
Option SATA		
T26139-Y3928-V1	SATA cable	Connecting SATA backplane to SATA controller; cabling add-on SATA controller
SNP:A3C40052661	I ² C bus cable SATA	Connecting SATA backplane to SATA controller; cabling add-on SATA controller
Option add-on controller signalize		
T26139-Y2361-V102	Signal cable	Connecting controller to system board (HD-ACTIVITY); signalizing HDD access to front panel
Option HDD extension box		
T26139-Y3927-V1	SCSI cable	Connecting HDD extension box to controller
Option chipDISK		
T26139-Y1584-V9 or T26139-Y1584-V10	IDE cable chipDISK	Connecting chipDISK to IDE port on system board (SEC_IDE)
Option RSBS2		
T26139-Y3874-V2	RSBS2 data cable	Connecting RSBS2 to system board (IPMB1)

Diagnostics

Assignment of the components in ServerView



Because of the different numbering depending on the server configuration, you find in the following an example for the maximum configuration and the field purpose will be described to identify the component.

Fans

Standard power supply:

No.	Purpose	Description
0	FAN CPU	CPU fan (speed can be controlled)
1	FAN STD PSU	Fan standard power supply
2	FAN SYS	System fan (speed can be controlled)

Redundant power supply:

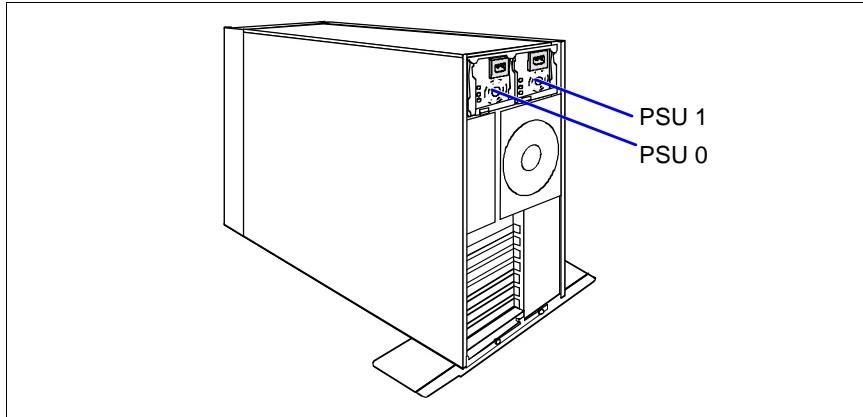
(each power supply module has two fans)

No.	Purpose	Description
0	FAN CPU	CPU fan (speed can be controlled)
1	FAN SYS	System fan (speed can be controlled)
2	FAN RED PSU0	Fan 1 of the first power supply module
3	FAN RED PSU0	Fan 2 of the first power supply module
4	FAN RED PSU1	Fan 1 of the second power supply module (optional)
5	FAN RED PSU1	Fan 2 of the second power supply module (optional)

Temperature sensors

No.	Purpose	Description
0	Systemboard	Temperature sensor on the system board (onboard)
1	CPU	Temperature sensor CPU (integrated in CPU)
2	Ambient	Environment temperature, temperature sensor on the IDTEMP combo, position is behind front panel, under the hard disks

Power supply units



No.	Purpose	Description
0	PSU0	Slot 0, standard power supply or redundant power supply first module
1	PSU1	Slot 1, redundant power supply second module (optional)

Troubleshooting

Power-on indicator remains dark after the switching-on

- Power cable not plugged correctly
 - ▶ Make sure that the power cable is plugged correctly to the server and the grounded power outlet.
 - ▶ Check the cables which lead from the multiple AC socket to the power supply units.
- Power supply overloaded
 - ▶ Unplug the power plug of the server.
 - ▶ Wait a few seconds and plug the power plug into the grounded power outlet again.
 - ▶ Switch on the server.

Server switches itself off

- Server Management has detected an error
 - ▶ If it is possible to restart the server so that ServerView can be used: check the error list in the program *ServerView* or the ErrorLog file and try to correct the detected error.

Screen remains dark

- Monitor is switched off
 - ▶ Switch on the monitor.
- Screen is blanked out
 - ▶ Press any key on the keyboard.
or
 - ▶ Set off the screen saver. Enter the required password.
- Brightness control is set to dark
 - ▶ Set the brightness control of the screen to *bright*. For detailed information, please refer to the operating manual supplied with the monitor.

- Power cable or monitor cable not connected
 - ▶ Switch off monitor and server.
 - ▶ Check, if the power cable is plugged correctly to monitor and grounded power outlet.
 - ▶ Check, if the monitor cable is connected correctly to server and monitor (in case a plug is available). If a separate graphics card is installed in the server, the monitor cable must be connected to the connection of this graphics card.
 - ▶ Switch on the monitor and the server.

Flickering stripes on the screen



Switch off the server immediately. Risk of damaging the monitor.

- Monitor does not support the set horizontal frequency.
 - ▶ Determine which horizontal frequencies are supported by your monitor. Further information about the horizontal frequency (also called line frequency or horizontal deflection frequency) can be found in the operating manual concerning the monitor.
 - ▶ How to set the correct horizontal frequency of the monitor can be looked up in the manual concerning the software of the graphics card or the manual concerning the operating system.

No screen display or drifting screen display

- The wrong horizontal frequency or resolution is set for the monitor or the application program.
 - ▶ Determine which horizontal frequencies are supported by your monitor. Further information about the horizontal frequency (also called line frequency or horizontal deflection frequency) can be found in the operating manual concerning the monitor.
 - ▶ How to set the correct horizontal frequency of the screen can be looked up in the manual concerning the software of the graphics card or the manual concerning the operating system.

No mouse pointer displayed on the screen

- Mouse driver not installed
 - ▶ Check, if the mouse driver is installed correctly and activated. Information concerning the mouse driver can be found in the documentation for mouse, operating system and application program.
- Mouse controller disabled

In case the supplied mouse is used, the mouse controller on the system board has to be switched on.

 - ▶ Check in the *BIOS-Setup*, if the mouse controller is *enabled*.

Floppy disk cannot be read or written

- ▶ Check, if the write protection of the floppy disk is activated.
- ▶ Check the entry for the floppy disk drive in the *BIOS-Setup*.
- ▶ Check in the *BIOS-Setup*, if the floppy disk drive controller and the write permission are switched on (information can also be found in the technical manual for the system board).
- ▶ Make sure that the cables of the floppy disk drive are connected correctly.

Time and/or date not correct

- ▶ Set the time and/or the date in the operating system or in the *BIOS-Setup*.
- i**
- In case time and date are repeatedly wrong after the server has been switched off and on, the lithium battery has to be replaced (Further information can be found in the technical manual for the system board).

„Critical“ status condition during boot

(only SATA version)

This error message is displayed from the SATA RAID controller:

ID	MODE	SIZE	TRACK-MAPPING	STATUS
1	1x2 Mirror	81000M	9847/255/63	Critical

Problem is detected with Array: 1

- A SATA hard disk drive from a RAID 1 or RAID 10 array has failed or is not responding.

You will find information for error cause and how to eliminate the error in the „FastTrak S150 TX4 User Manual“, chapter „Troubleshooting & Tips“ .

Further information is provided also in the manual on the SATA RAID controller „Promise Array Management (PAM) for FastTrak S150 TX2plus, S150 TX4 and TX4000 User Manual“.

System will not boot after installing a new hard disk drive

(only SCSI version)

- SCSI configuration incorrect (ultra-wide SCSI controller)
 - ▶ Check in the SCSI configuration menu the settings for the hard disk drives (*SCSI Device Configuration*) and the additional settings (*Advanced Configuration Options*).

Drives are reported as "dead" at system boot

(only SCSI version)

This error message can occur, when the server has a RAID controller.

- Configuration of the RAID controller is wrong.
 - ▶ Check and correct with the configuration program of the RAID controller the settings for the drives.

Further information can be found in the operating manual concerning the RAID controller.

Added drive is reported as defective

This error message can occur with the SCSI or with the SATA version, providing the server has a RAID controller.

- RAID controller is not configured for this hard disk drive
The drive was installed with the system switched Off.
 - ▶ Reconfigure the RAID controller for the drive with the corresponding utility. You will find the information in the documentation of the RAID controller.

or

- ▶ Re-insert the hard disk module with the system switched on into a free bay.

Further information can be found in the operating manual concerning the RAID controller.

Removal/installation routines

Preparation



When working with systems and boards, make sure to observe the safety information in the module „General information“ of the service manual.

Electrostatically discharge yourself by touching a grounded object before handling the components. Observe that electrostatic-sensitive devices (ESDs) should only be held at the edges and placed on a pad which is free from electrostatic charge.

Any devices or tools that are used must be free from electrostatic charge. For this purpose wear an electrostatic wrist band or use a suitable grounding cable that connects you to the external chassis of the system unit.



Procedures which are identical for the floorstand and rack model are only described for the floorstand model.

- ▶ If you do not want to carry out hot-plug operations, please shut down the operating system, switch off the server, and unplug all power plugs.

Opening/closing the server

Floorstand model

If you want to fully open the server you must proceed as follows:

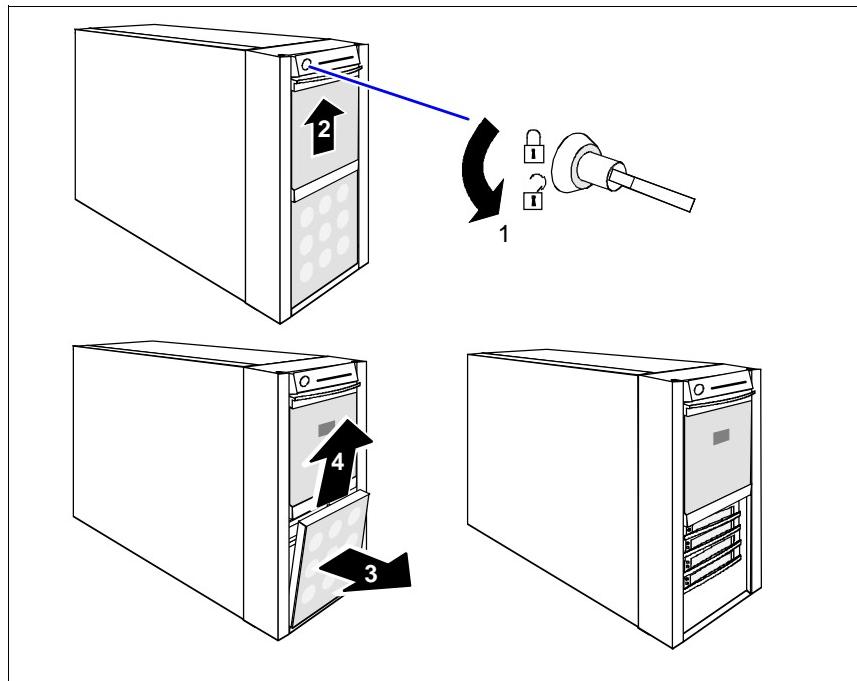
- remove the drive covers
- remove the left side cover
- remove the front cover

Removing/installing the drive covers

There are two drive covers:

- hard disk cover
- cover of the accessible drives (front sliding cover upper position)

Hard disk cover



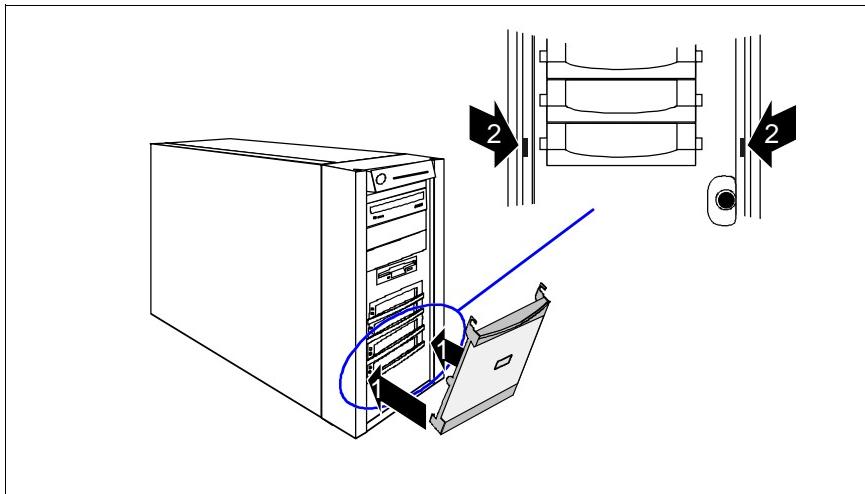
- ▶ Unlock the server (1) and remove the key.
- ▶ Slide up the cover of the accessible drives as far as possible (2).
- ▶ Remove the hard disk cover towards the front (3 + 4).

Mounting of the hard disk cover is performed in reverse order.

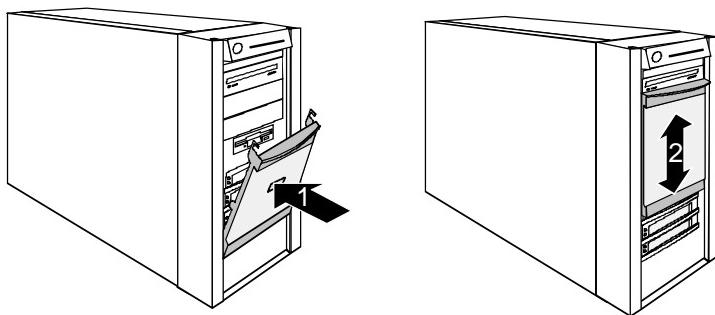
Cover of the accessible drives

The cover for the accessible drives is held in place in the indicated guides by two tabs on the right and left. To provide a better understanding of the procedure, the installation is described before the removal.

Installing

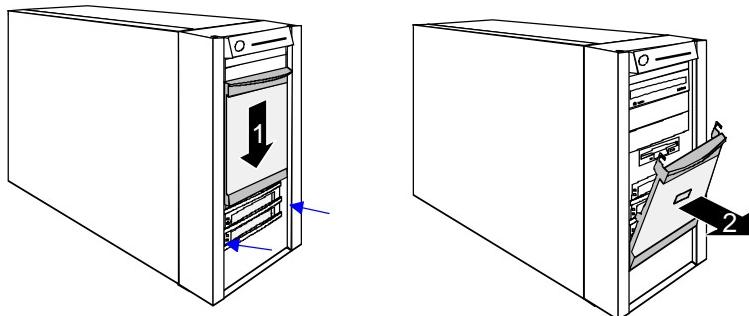


- ▶ Hook the tabs (1) of the cover of the accessible drives into the guides on the left and on the right (2).



- ▶ Push backwards the top end of the cover of the accessible drives (1).
- ▶ Now you can slide the cover of the accessible drives up and down (2).

Removing

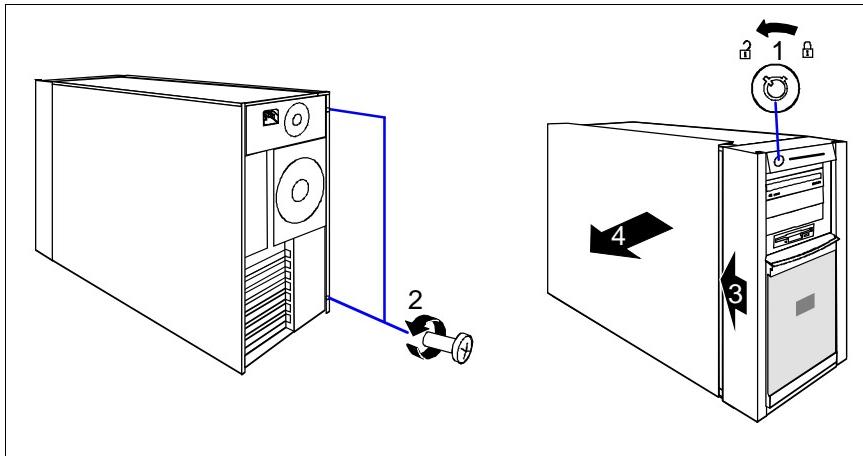


- ▶ Slide the cover of the accessible drives to the position marked (1).

- ▶ Pull forwards the top end of the cover of the accessible drives and remove it (2).

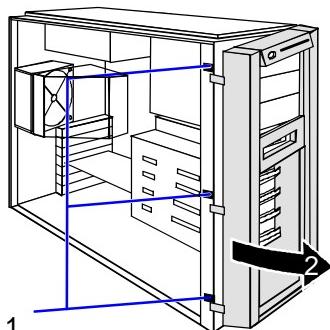
 When you remove the cover make sure that the both guide notches (topside) are not damaged.

Removing/Installing the left side cover

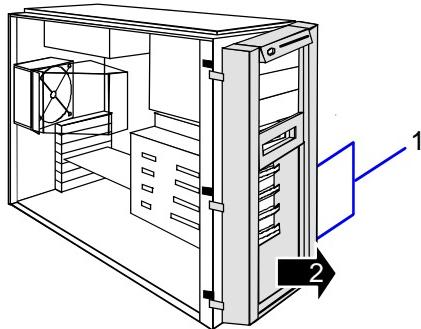


- ▶ Unlock the server (1).
- ▶ Remove the two screws (2) at the rear.
- ▶ Push back the left side cover in the direction marked (3).
- ▶ Remove the left side cover (4).

Installation is performed in reverse order.

Removing/installing the front cover

- Disengage the three tabs (1) on the left side one after the other and rotate the front cover outwards (2) about 2 cm.



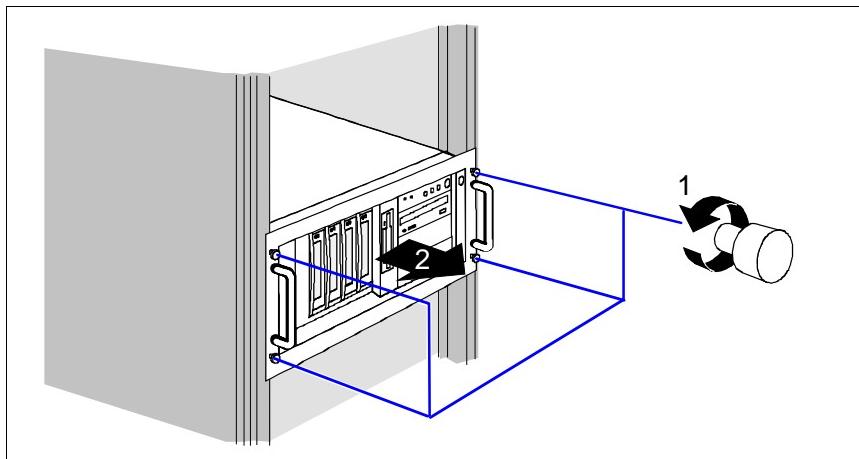
- Disengage the two tabs (1) on the right side one after the other and pull out the front cover frontwards (2).

Installation of the front cover is performed in reverse order.

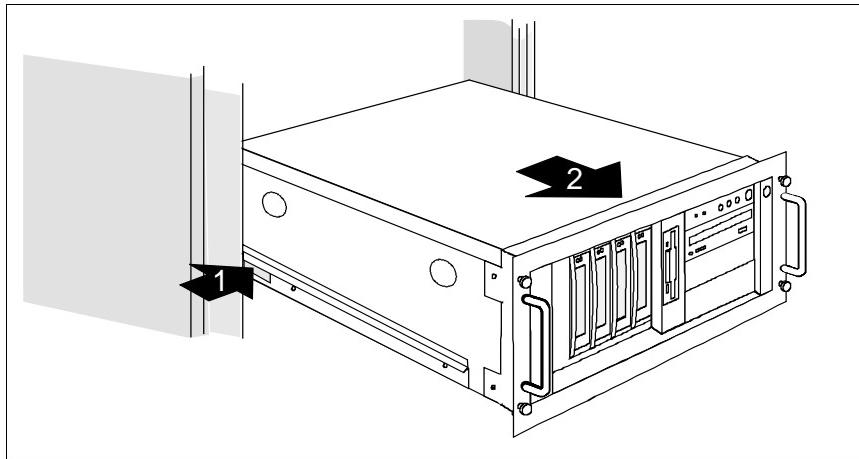


For installing make sure that all tabs engage correctly.

Rack model



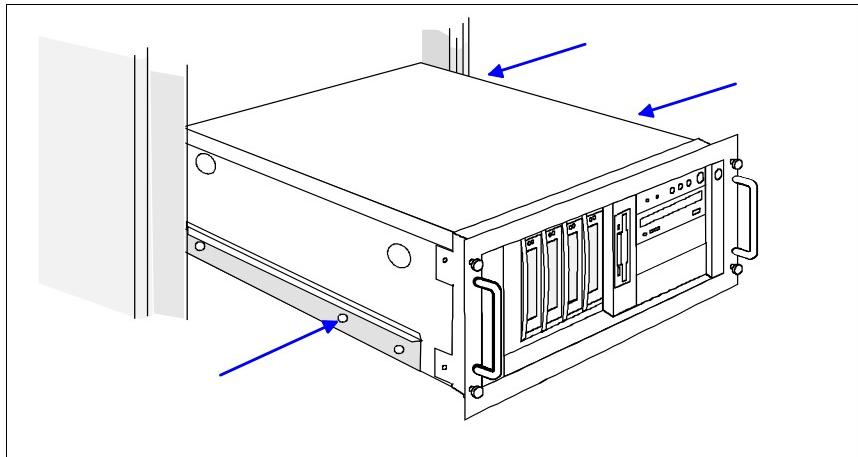
- ▶ Loosen the four knurled screws (1) and pull the server carefully out of the rack up to the stop (2).



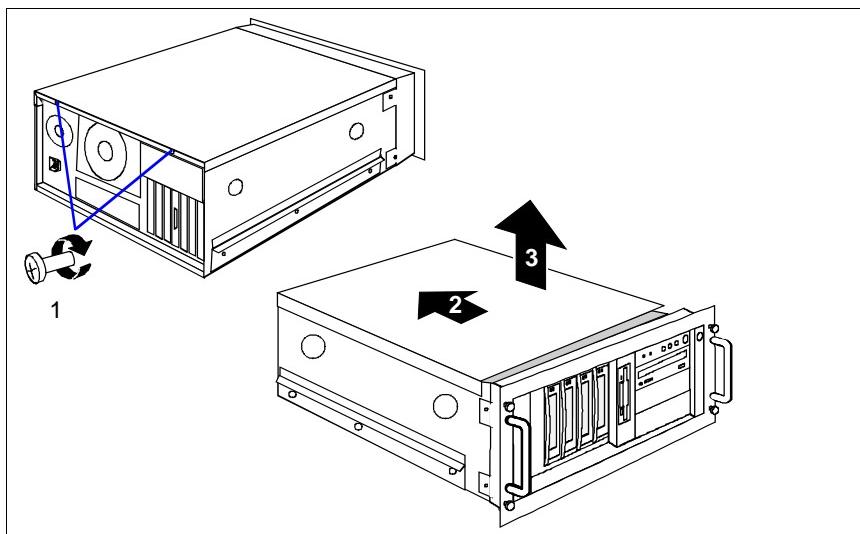
- ▶ Press in the locking spring (1) on both sides and carefully pull the server outwards (2).



You need the help of another person to take the server out of the rack.



- ▶ Remove the telescopic rails on the left and right side (three screws).
- ▶ Take the server out of the rack.



- ▶ Unlock the top cover with removing the two screws at the rear (1).

- ▶ Push the top cover approx. 2 cm backwards (2).
- ▶ Lift off the top cover upwards (3).

Closing is done in reverse order.

Hard disk subsystem

There are two versions of the hard disk subsystem:

- SCSI version
- SATA version

SCSI version

The hard disk subsystem consists of a hard disk cage with up to four ULTRA-320 SCSI hard disk modules and the SCSI backplane.

You can mount up to 4 hard disk modules into the PRIMERGY TX150S2 server. Ultra3-Wide U320 SCSI hard disk drives are used. The hard disk drives are mounted in modules which makes it very easy to insert or remove the hard disk. Each module is equipped with a status indicator and an error indicator.

The hard disk subsystem can be controlled by the onboard U320 controller, a PCI standard SCSI controller or by a SCSI RAID controller.

The SCSI IDs of the hard disk modules are predefined (see also page [02-TX150S2-63](#)).

In the SCSI version it is possible to install a HDD extension box in two bays of the accessible drives. By this three additional ULTRA-320 SCSI hard disk modules can be used.

SATA version

The hard disk subsystem consists of a hard disk cage with up to four SATA hard disk modules and the SATA backplane. Each hard disk module can accommodate a SATA hard disk drive with a SATA interface and a maximum height of 1 inch. The module is connected to the SATA backplane without cables via the SATA interface. This allows hard disk modules to be simply plugged in or pulled out.

The hard disk subsystem can be controlled by a SATA controller or by a SATA RAID controller.

If a hard disk drive is operated on a RAID controller and belongs to a disk array, that operates in RAID level 1 or level 5, the hard disk drive can be replaced during operation (hot-plug). To replace a hard disk drive the same or a higher capacity of the new hard disk drive is required. A rebuild of the data on the new hard disk drive is performed automatically after the replacement, provided that the RAID controller is configured correctly. Refer to the information on the ServerBooks CD-ROM (section „Controllers“) or in the RAID controller manual.

Notice the following for hard disk drives connected to a RAID controller:

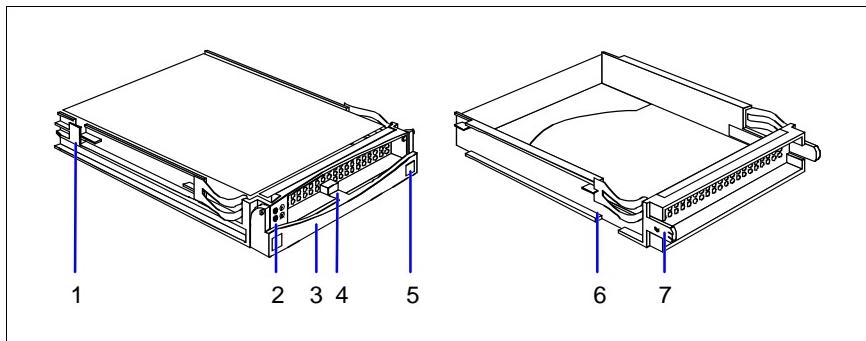
- RAID level 0 and 7
Rebuild is not possible. If a hard disk fails, its data is lost.
 - RAID level 1 and 5 without standby hard disk
Rebuild on the new disk is carried out automatically when the old disk is replaced.
 - RAID level 1 and 5 with standby hard disk
A standby hard disk is automatically activated as a replacement for the defective hard disk. The data of the defective disk is rebuilt on the standby disk. The defective disk is automatically deactivated.
- Read the documentation for the new hard disk drive.



The hard disk carriers are identic for the SCSI and the SATA version. You can identify the hard disk modules by the different connectors of the hard disk drives mounted in the hard disk carriers.

Components and indicators of the hard disk module

The hard disk drives which can be ordered for the server are supplied already mounted in the hard disk modules. The modules are equipped with a status indicator and an error indicator. Empty bays are covered with dummy covers.



1	Hard disk module (hard disk carrier with installed hard disk drive)
2	Indicators HDD access (LED green) HDD error (LED orange)
3	Swivelling handle for engaging and disengaging the hard disk module
4	Locking button
5	Ridge for the application of a sticker with the current drive size
6	Dummy cover
7	Locking tabs

Functions of the indicators

Green indicator: The green indicator lights up when a hard disk drive is being accessed. The hard disk module cannot be replaced at this time!

Orange indicator: The orange LED flashes when, in conjunction with a RAID controller, the configuration is being determined or a rebuild is being done. You may not replace the hard disk module at this time!

The orange LED remains lit if the hard disk drive is deactivated and/or defective and can be replaced.

Installing/removing a hard disk module

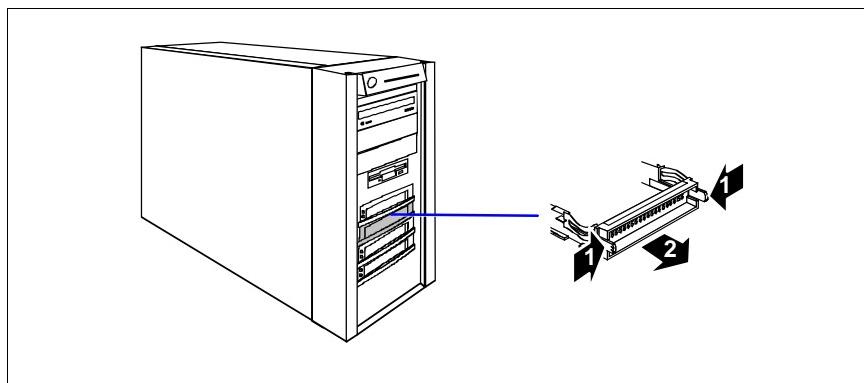
Requirements:

- hard disk cover has been removed

i In order to be able to recognize a hard disk drive's capacity at once when replaced, several prefabricated stickers displaying imprinted storage capacities are provided with the server. Each hard disk module should be labeled with a sticker indicating the capacity of the installed hard disk drive. In case no suitable sticker is available, blank stickers for labeling are also provided. The stickers are color coded for an easier identification.

If a hard disk module is to be installed in a bay in which no hard disk module was previously installed, then the dummy cover must be removed from this bay beforehand.

Removing the dummy cover



- ▶ Press the two locking tabs at the left and right on the dummy cover together (1) until the detent is released.
- ▶ Remove the dummy cover from the bay (2).



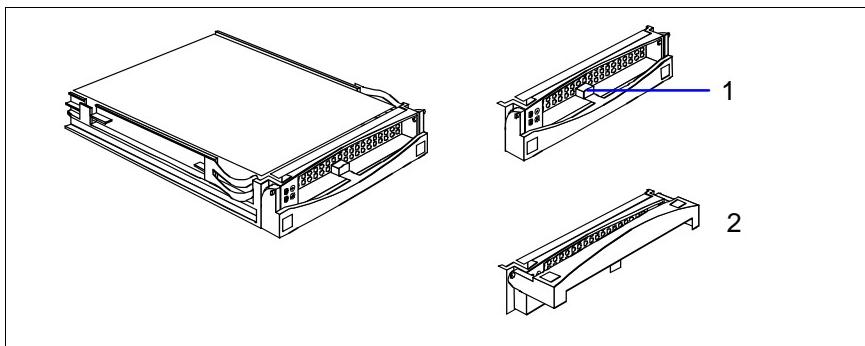
Keep the dummy cover for future use. If the hard disk module is removed again and not replaced with a new module, then the dummy cover must be reinstalled due cooling, the applicable EMC regulations (electromagnetic compatibility) and satisfy cooling requirements and fire protection measures.

Installing the dummy cover

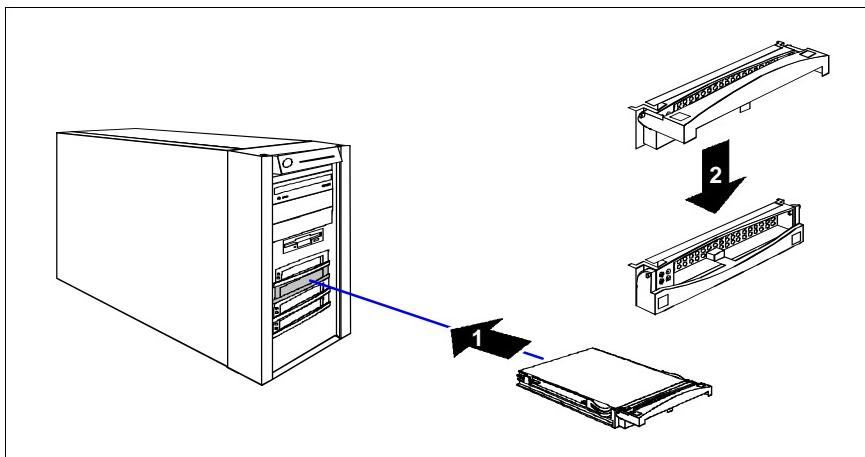
- ▶ Insert the dummy cover into the empty bay.

i Make sure that the dummy cover engages properly in the bay on each side.

Installing SCSI hard disk module



- ▶ Solve the locking mechanism (1) by pressing the locking button.
- ▶ Swing the handle of the hard disk module fully upwards (2).



- ▶ Insert the new hard disk module (1).

- ▶ Swing the carrier handle of the hard disk module completely down to enable the locking button to engage (2).

Removing hard disk module

- ▶ Solve the locking mechanism by pressing the locking button.
- ▶ Swing the handle of the hard disk module fully upwards.
- ▶ Remove the hard disk module.

 If a hard disk drive has been removed and no new drive is installed in its place, then install a dummy cover in the empty bay.

Replacing a hard disk module during operation (hot-plug)

 A hard disk drive may only be replaced during operation if the orange LED on the hard disk module remains lit.

Never pull out a hard disk module during operation if you are not sure that the hard disk drive is operated on a RAID controller and is part of a disk array operates in RAID Level 1 or 5.

If you replace a hard disk module during operation, proceed as follows:

- ▶ Solve the locking mechanism of the hard disk module indicated as defective by pressing the locking button.
- ▶ Swing the handle of the hard disk module fully upwards.
- ▶ Pull out the hard disk module a few centimeters.
- ▶ Wait at least 60 seconds so that the RAID controller can recognize that a hard disk module has been removed and the rotation of the hard disk can come to rest.
- ▶ Pull the hard disk module completely out.
- ▶ Solve the locking mechanism of the new hard disk module by pressing the locking button.
- ▶ Swing the handle of the hard disk module fully upwards.
- ▶ Insert a new hard disk module.
- ▶ Now swing the carrier handle of the hard disk module completely down to enable the locking mechanism to engage.

Changing the hard disk drive in the hard disk carrier



Please note that the hard disk drives which can be ordered for the server are supplied already mounted in hard disk carriers. Only under special circumstances should a hard disk drive need to be changed out of its carrier.



Make sure that the new hard disk drive has the right interface (SCA or SATA).

- ▶ Remove the hard disk module indicated as defective.
- ▶ Remove the four screws on the sides of the hard disk carrier, two on the right and two on the left.
- ▶ Take the hard disk drive out of the hard disk carrier.
- ▶ Replace the hard disk drive or the hard disk carrier.
- ▶ Mount the hard disk drive in the hard disk carrier with four screws.



Use always the four delivered screws (round-headed). Every other screws head form will damage the guiding rails on each side.

Installation is performed in reverse order.

Replacing the SCSI backplane

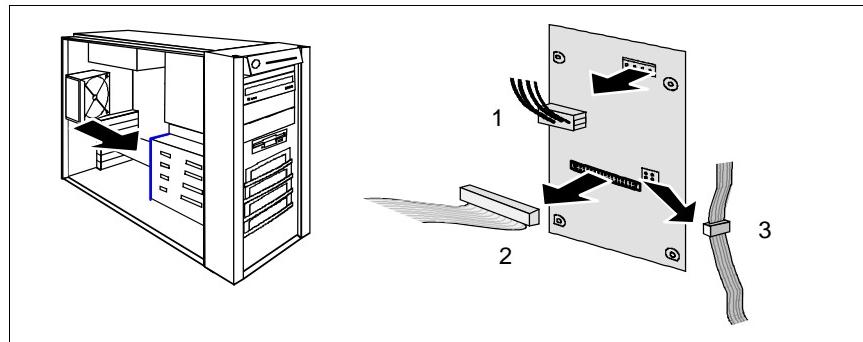
The SCSI backplane is mounted on the hard disk cage. It is not necessary to remove the hard disk cage before replacing the SCSI backplane.

Requirements

- server has been switched off
- power cords have been disconnected
- left side cover has been removed
- all SCSI hard disk drives have been removed



Check if all hard disk drives are uniquely identified so that you can reinsert them into their original bays.



- ▶ Disconnect the power cable (1), the SCSI data cable (2), and the I²C connector (3) from the SCSI backplane.
- ▶ Remove the four screws (two at each side) that fasten the SCSI backplane holder to the hard disk cage.
- ▶ Take the SCSI backplane together with the holder out of the server. Be carefully with the isolation foil.
- ▶ Press down the rear side of the body-bound rivets which fasten the SCSI backplane to the holder and lift the SCSI backplane from the holder.

Installation of the new SCSI backplane is performed in reverse order.

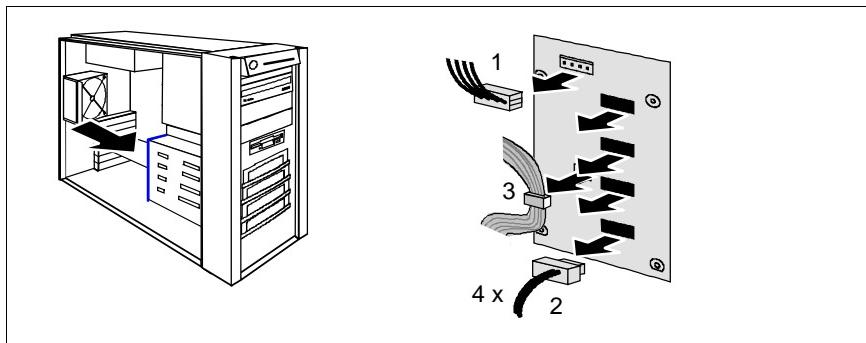
Replacing the SATA backplane

The SATA backplane is mounted on the hard disk cage. It is not necessary to remove the hard disk cage before replacing the SATA backplane.

Requirements

- server has been switched off
- power cords have been disconnected
- left side cover has been removed
- all SATA hard disk drives have been removed

 Check if all hard disk drives are uniquely identified so that you can reinsert them into their original bays.



- ▶ Disconnect the power cable (1), the four SATA data cables (2), and the I2C connector (3) from the SCSI backplane.
- ▶ Remove the four screws (two at each side) that fasten the SATA backplane holder to the hard disk cage.
- ▶ Take the SATA backplane together with the holder out of the server. Be carefully with the isolation foil.
- ▶ Press down the rear side of the body-bound rivets which fasten the SATA backplane to the holder and lift the SATA backplane from the holder.

Installation of the new SATA backplane is performed in reverse order.

Accessible drives and operating panel

A total of three accessible drives and a floppy disk drive can be mounted in the PRIMERGY TX150S2 server.

- i** Each SCSI drive must be assigned to a unique SCSI ID (4-6). The termination has to be switched off.

In the SCSI version the two lower 5.25 inch bays for accessible drives can be used to install a HDD extension box. But it is required that the server is equipped with a 1- or 2-channel RAID controller.

- i** It is not allowed to operate the hard disks of the HDD extension box together with the internal hard disks via **one** common SCSI line.

You find the operating panel module also in the drive cage for accessible drives.

Installing/removing an accessible 5.25" drive

Requirements

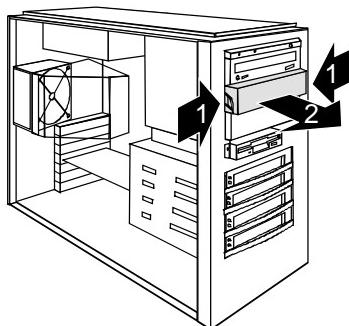
- server has been switched off
- power cords have been disconnected
- left side cover has been removed
- front cover has been removed

- i** New 5.25"drive are delivered without EasyClick rails. Before installing a new 5.25"drive you have to unscrew the EasyClick rails from the dummy cover or the old 5.25"drive. Afterwards the EasyClick rails have to be mounted on the new 5.25"drive.

If a 5.25"drive is to be installed in a bay in which no 5.25"drive was previously installed, then the dummy cover must be removed from this bay beforehand.

In case the 5.25"drive is removed and not replaced by a new one, the dummy cover has to be reinstalled to comply with applicable EMC regulations (regulations on electromagnetic compatibility) and satisfy cooling requirements and fire protection measures.

Removing dummy cover



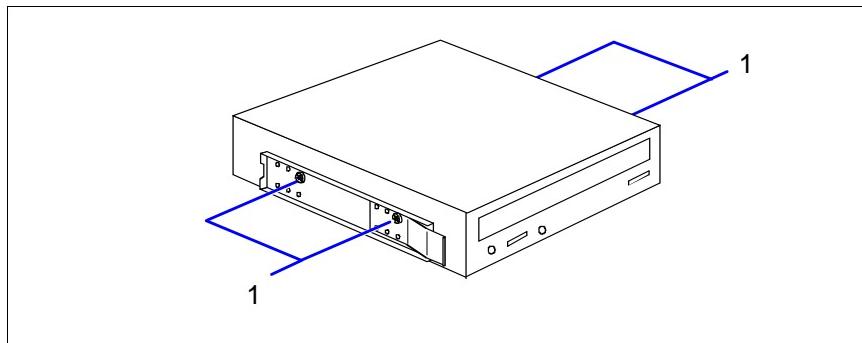
- ▶ Press together the two springs of the EasyClick rails in the direction marked (1) to disengage the locking mechanism.
- ▶ Pull the dummy cover out of the bay (2).
- ▶ Remove the EasyClick rails from the dummy cover by removing the four screws (2xUNC6-32 and 2xM3) on each side.



Keep the dummy cover for future use. In case the 5.25"drive is later removed and not replaced by a new one, the dummy cover has to be reinstalled to comply with applicable EMC regulations (regulations on electromagnetic compatibility) and satisfy cooling requirements and fire protection measures.

Installing dummy cover

- ▶ Screw the two EasyClick rails on both sides of the dummy cover.
- ▶ Push the dummy cover into the bay until the locking mechanism of the EasyClick rails engages on both sides.

Installing an accessible 5.25" drive

- ▶ Screw the two EasyClick rails on both sides of the accessible 5.25" drive (1). Use the first hole in each upper row of holes on both sides of the drive as depicted in the diagram.
Use screws with M3 or UNC6-32 threads (depending on the threads of the drive being installed).
- ▶ Push the accessible drive into the bay until the locking mechanism of the EasyClick rails engages.
- ▶ Connect one end of the IDE/SCSI flat ribbon cable to the IDE connector of the accessible drive.
- ▶ Connect the power plug to the power connector of the accessible drive.

Removing an accessible 5.25" drive

- ▶ Disconnect the SCSI/IDE data cables and the power supply cable from the accessible drive.
- ▶ Press together the two springs of the EasyClick rails until they are unlocked.
- ▶ Pull the drive out of its bay.
- ▶ Remove the EasyClick rails from the dummy cover by removing the two screws on each side.

Installing/removing the HDD extension box

In the SCSI version the two lower 5.25 inch bays for accessible drives can be used to install a HDD extension box. But it is required that the server is equipped with a 1- or 2-channel RAID controller.



It is not allowed to operate the hard disks of the HDD extension box together with the internal hard disks via **one** common SCSI line.

The HDD extension box allows up to three additional hard disk modules to be installed. Each hard disk module can accommodate a SCSI hard disk drive with an SCA (Single Connector Attachment) interface and a maximum height of 1 inch. The SCSI hard disk module is connected to the SCSI backplane without cables via the SCA interface. This allows SCSI hard disk modules to be simply plugged in or pulled out. If the server has a RAID controller and a corresponding RAID configuration, defective hard disk modules can also be exchanged during operation.

For upgrading to a HDD extension box you need the conversion kit S26361-F2826-E1.

Requirements

- server has been switched off
- power cords have been disconnected
- left side cover has been removed
- front cover has been removed



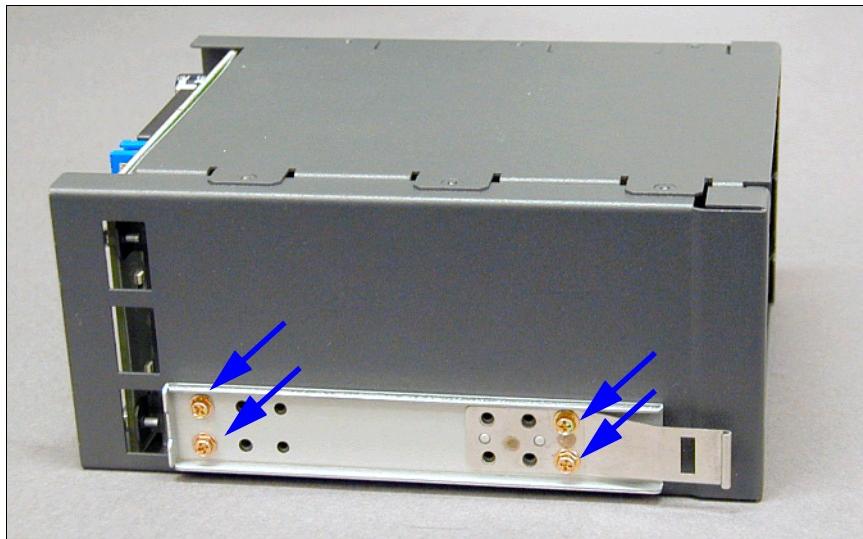
The HDD extension box is delivered without EasyClick rails. Before installing a HDD extension box you have to remove the EasyClick rails from a dummy cover or a 5.25inch drive. Afterwards the EasyClick rails have to be mounted on the HDD extension box.

Removing dummy covers

- ▶ Remove the two dummy covers of the lower bays for accessible drives (see page 02-TX150S2-93).



In case the HDD extension box is removed and not replaced by a new one, the dummy covers have to be reinstalled to comply with applicable EMC regulations and satisfy cooling requirements and fire protection measures.

Installing the HDD extension box

- ▶ Screw the two EasyClick rails on both sides of the HDD extension box using four M3 screws. Use the marked holes.
- ▶ Push the HDD extension box halfway into the free bay.
- ▶ Connect the power plug P2 to the power connector of the HDD extension box (see cabling on page [02-TX150S2-62](#)).
- ▶ Connect the I²C bus cable with the I²C bus connector of the HDD extension box.
- ▶ Connect the SCSI cable T26139-Y3927-V1 included in the conversion kit to the SCSI connector on the HDD extension box.
- ▶ Route the SCSI cable and connect it to the SCSI connector on the 1- or 2-channel RAID controller.
- ▶ Push the HDD extension box into the bay until the locking mechanism of the EasyClick rails engages.

Removing the HDD extension box

- ▶ Press together the two springs of the EasyClick rails until they are unlocked.
- ▶ Pull the HDD extension box out of the bay as far as possible.



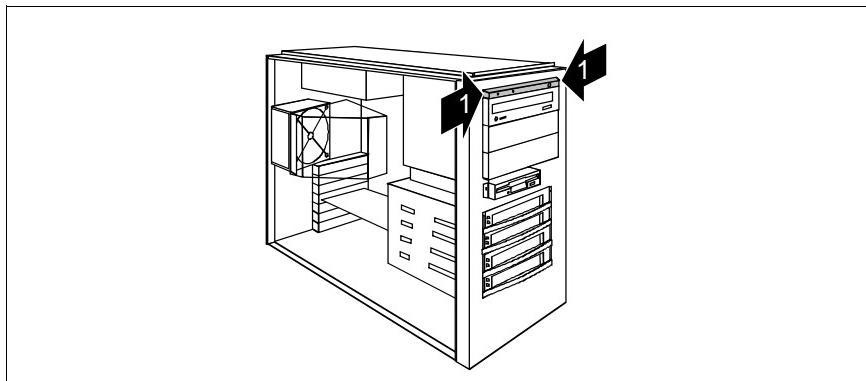
Make sure not to strain the cables.

- ▶ Disconnect all cables from the HDD extension box.
- ▶ Pull the HDD extension box completely out of its bay.
- ▶ Remove the EasyClick rails from the HDD extension box by removing the four screws on each side.

Replacing the operating panel board

Requirements

- server has been switched off
- power cords have been disconnected
- left side cover has been removed
- front cover has been removed



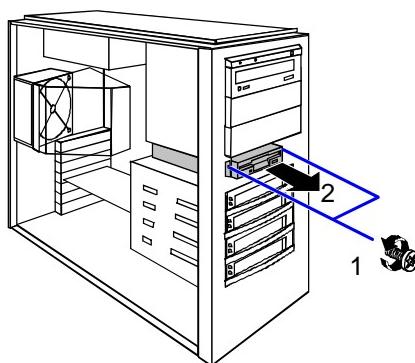
- ▶ Press together the two springs of the EasyClick rails until they are unlocked (1).
- ▶ Pull the operating panel module out of its bay as far as it is possible to unplug the flat ribbon cable and the USB cable from the operating panel board. Unplug both cables.

- ▶ Pull the operating panel module out of its bay as far as it is possible to get access to the cable tie.
- ▶ Thread the two cables through the cable tie.
- ▶ Take the operating panel module out of its bay.
- ▶ Push the new operating panel module into its bay as far as it is possible to have access to the cable tie.
- ▶ Thread the two cables through the cable tie.
- ▶ Push the operating panel module into its bay as far as it is possible to plug the cables.
- ▶ Plug the flat ribbon cable and the USB cable on the operating panel board.
- ▶ Push the operating panel module into the housing until it engages.

Replacing the floppy disk drive

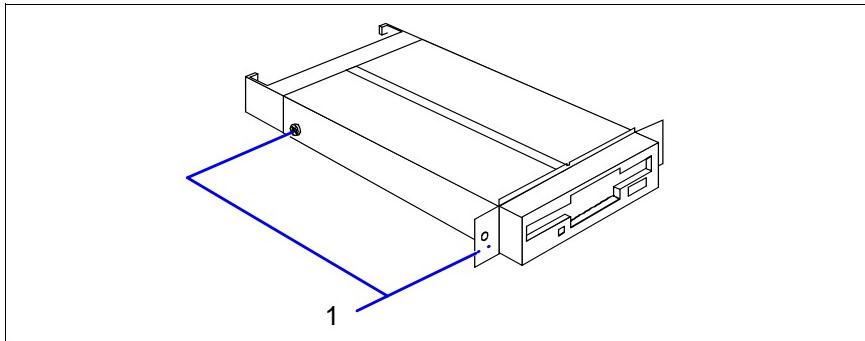
Requirements

- server has been switched off
- power cords have been disconnected
- left side cover has been removed
- front cover has been removed



- ▶ Disconnect the power cable and the data cable from the floppy disk drive.

- ▶ Remove the two screws (1) that attach the drive holder to the housing front side.
- ▶ Pull the drive holder out of the server (2).



- ▶ Remove the two screws (1) and take the floppy disk drive out of the drive holder.

Installation is performed in reverse order.

RemoteView medium

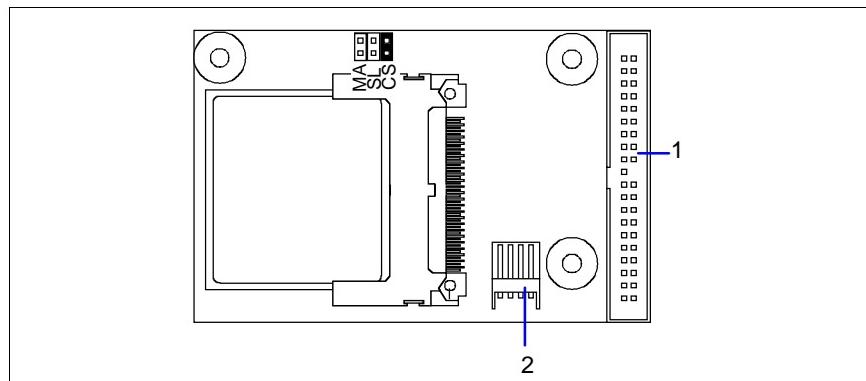
To be able to install *RemoteView*, the remote monitoring and diagnostics system on the server, a *RemoteView* chipDISK is optionally available for the PRIMERGY TX150S2. The chipDISK features an IDE interface and is mounted on a side of the hard disk cage. Two different versions are available:

- chipDISK with removable CompactFlash (CF+) mass storage card
- chipDISK with removable Microdrive storage ranging from 170 MB to 1 GB (CF+ compatible).

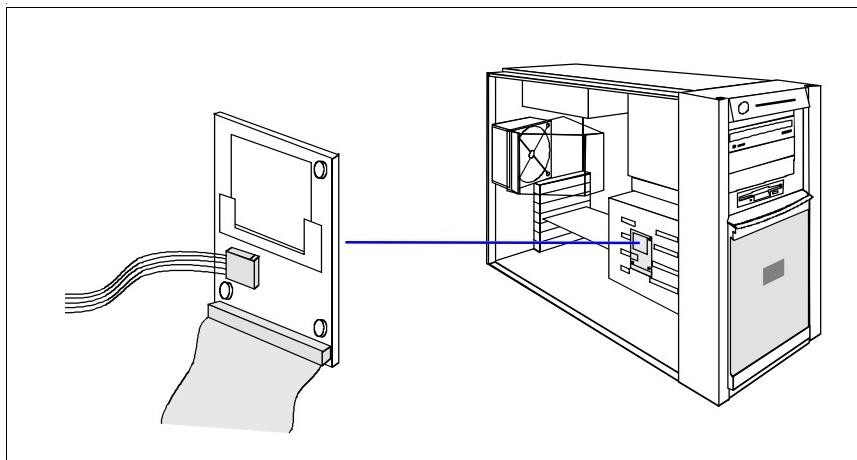
Installing/removing the chipDISK

Requirements

- server has been switched off
 - power cords have been disconnected
 - left side cover has been removed
- Set the jumper from position MA to **CS**. The positions MA and SL remain open.



- Connect one end of the IDE flat ribbon cable (with a coded pin) into the IDE connector on the chipDISK (1).
- Connect the power connector line with the chipDISK (2).



- ▶ Insert the chipDISK at the intended location on the hard disk cage and attach it using the three screws.
- ▶ Connect the power plug connector P7 to the power connector on the chipDISK.
- ▶ Connect the free end of the IDE cable to the **primary** IDE interface (1) provided on the system board (see [page 02-TX150S2-59](#)).

i The primary IDE channel remains hidden in the BIOS until a system failure activates the chipDISK. Do not connect a second device to the primary IDE channel; the chipDISK must occupy this channel alone. You may, however, connect two devices (master and slave) to the secondary IDE channel.

Removal is performed in reverse order.

Configuring the chipDISK

You must enter the chipDISK parameters in *BIOS Setup* and boot from the chipDISK once using these parameters in order for *RemoteView* to be started automatically later. Proceed as follows:

- ▶ Restart the server.
- ▶ Press [F2] when the message *Press <F2> to enter SETUP* is displayed on the screen.

- ▶ Select the menu item *IDE Primary Channel Master* from the *Disk Drives* screen page in the BIOS setup.
 - ▶ Set the value for *Type* to *Auto*.
 - ▶ Select the menu item *IPMI Configuration* from the BIOS setup.
 - ▶ Set the value for *Diagnostic System* to *enabled*. Then set the entry for *Next Boot Uses* to *Diagnostic System*.
 - ▶ Save the settings and exit the BIOS Setup.
The server boots MS-DOS and the RemoteView from the chipDISK.
- i** If the *RemoteView* software is not yet installed on the chipDISK, install the software as described in the manual for *RemoteView*.
- ▶ To terminate *RemoteView*, use the menu item *Boot Original OS*. The server will then boot the standard operating system.

RemoteView service board S2

You will find the installation, removal and configuration of the RSB S2 in the item RSB S2/RSB S2 LP in module „Controllers“ of the service manual (this item is only available in the online version).

The preferred slots for the RSB S2 are PCI slot 1, 4 or 5.

The RSB S2 is connected by a data cable only to the system board. The RSB S2 kit includes an external power supply.

Boards in PCI slots

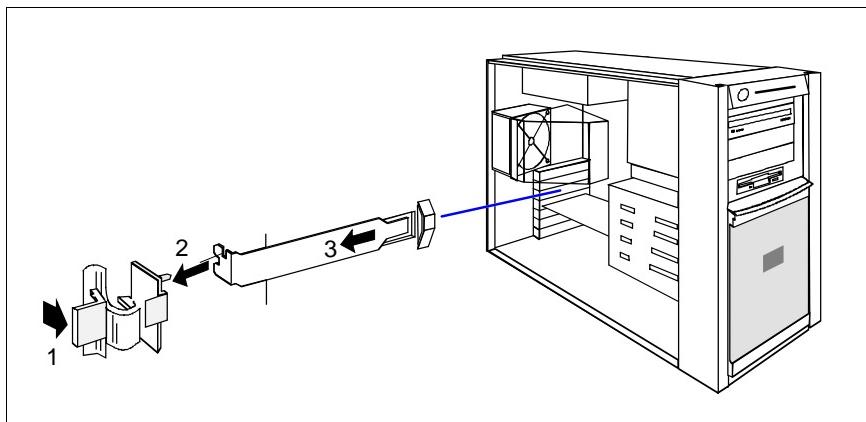
Before installing or removing a board, please read the documentation supplied with the board.

Installing/removing a board

Requirements

- server has been switched off
- power cords have been disconnected
- left side cover has been removed

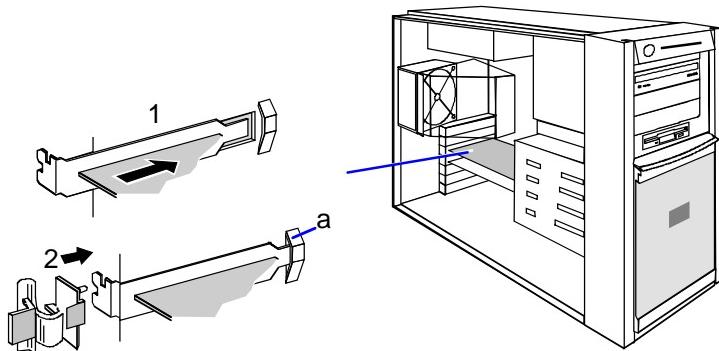
Installing a board



- ▶ Press in direction of the arrow (1) on the clamp fix and remove it (2).
- ▶ Take out the rear slot cover plate of the slot (3).



Do not dispose of the rear slot cover plate. For cooling, protection against fire and in order to comply with EMC regulations, you must refit the rear slot cover plate if you remove the board and no new board will be installed.



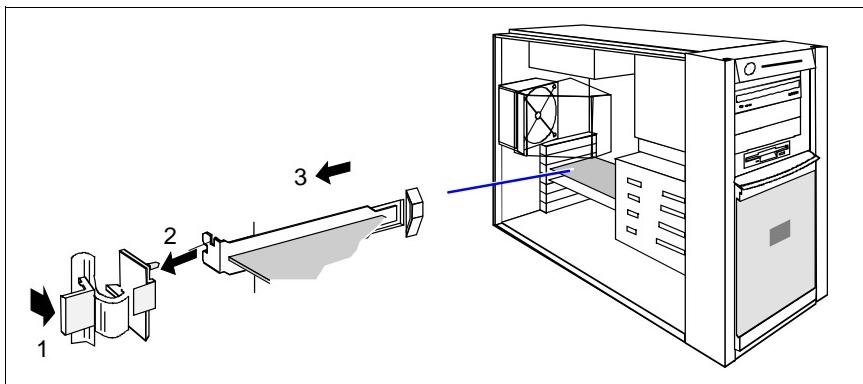
- ▶ Insert the board in the required slot on the system board and push it carefully into place (1). Make sure that the rear slot cover plate of the board is positioned in the groove (a).
- ▶ Insert the clamp fix for fastening the board as shown (2). Make sure that the clamp fix engages in the housing.
- ▶ If necessary, plug the lines on the new board.

Removing a board

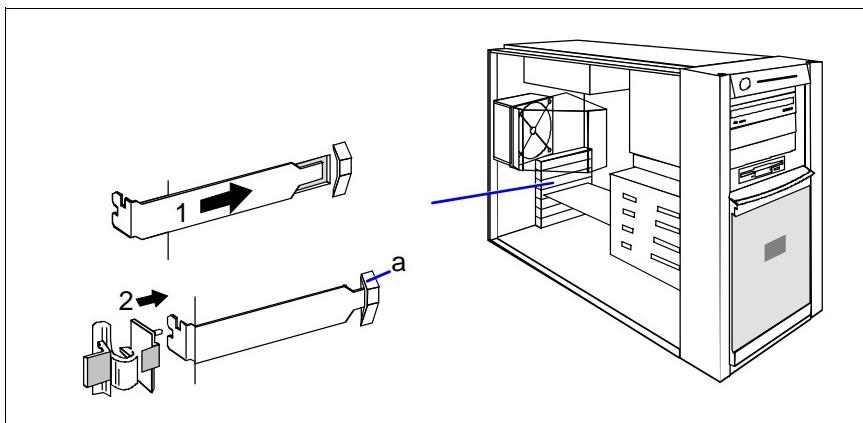


Even with the system switched off, certain parts of the device (e.g. memory modules and PCI expansion boards) may still be energised. These components may only be replaced when the device is completely disconnected to the line voltage.

- ▶ Remove the lines which may be connected to the board.



- ▶ Press in direction of the arrow (1) on the clamp fix and remove it (2).
- ▶ Pull out the board of the slot (3).



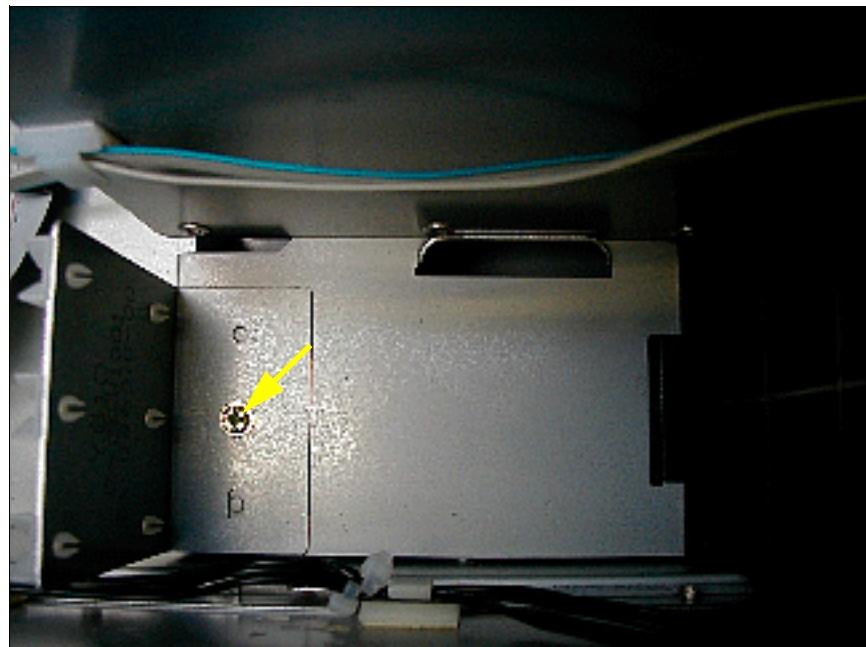
- ▶ Insert the rear slot cover plate into the empty slot (1). Make sure that the rear slot cover plate is positioned in the groove (a).
- ▶ Insert the climb fix for fastening the rear slot cover plate as shown (2). Make sure that the climb fix engages in the housing.

Removing the card guide

The card guide serves as an additional holder for full-length PCI-boards mounted into the lower three slots. You find the card guide above the SCSI hard disk cage.

Requirements

- server has been switched off
 - power cords have been disconnected
 - left side cover has been removed
- Remove the full-length PCI boards from the lowest PCI slots.



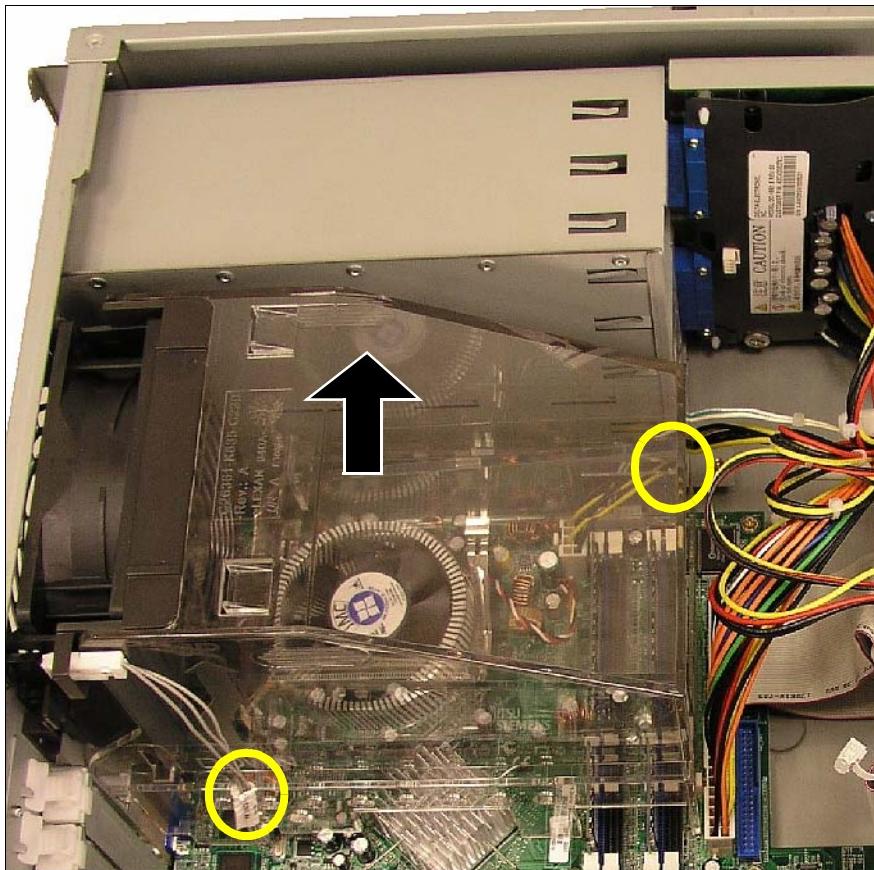
- Remove the screw (see arrow).
- Take the card guide out of the server.

Mounting is performed in reverse order.

System board

Air duct

Removing/installing the air duct



- ▶ Take out the air duct upwards.
- ▶ Reinstall the air duct. Make sure that the system fan cable and the power supply cables fit into the recesses (see circles).

Main memory

There are four slots for main memory. You can install 256 Mbyte, 512 Mbyte and 1 Gbyte DDR DIMM memory modules. The board supports a maximum of 4 Gbytes. Memory modules with different memory capacities can be combined.

 You may only use unbuffered 3.3 V memory modules. Buffered memory modules are not allowed and lead to a device failure. DDR DIMM memory modules may meet the PC2100/2700/3200 specification.

The following memory configurations are possible:

Mode	DIMM 0A (blue)	DIMM 1A (black)	DIMM 0B (blue)	DIMM 1B (black)
1x memory module S26361-F3019-E51x (single-channel)	populated			
2x memory module S26361-F3019-E51x (single-channel)	populated	populated		
3x memory module S26361-F3019-E51x (single-channel)	populated	populated	populated	
4x memory module S26361-F3019-E51x (single-channel)	populated	populated	populated	populated
1x memory S26361-F3019-E52x (dual-channel)	populated		populated	
1x memory S26361-F3019-E52x (dual-channel)		populated		populated
2x memory S26361-F3019-E52x (dual-channel)	populated	populated	populated	populated

 In the dual-channel configuration you must install identical memory modules in DIMM 0A and 0B (blue slots) and identical memory modules in DIMM 1A and 1B (black slots).

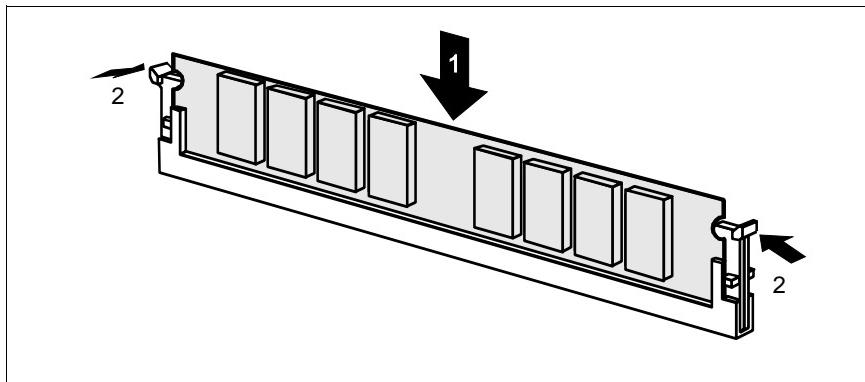
Installing/removing memory modules

Requirements

- server has been switched off
- power cords have been disconnected
- left side cover has been removed
- air duct has been removed

Installing memory modules

- Flip the ejector tabs on each side of the relevant slot outwards.

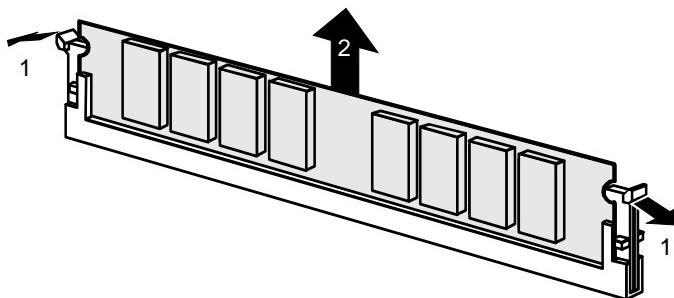


- Insert the memory module into the slot (1) until the ejector tabs engage on both sides of the memory module (2).

Removing memory modules



Even with the system switched off, certain parts of the device (e.g. memory modules and PCI expansion boards) may still be energised. These components may only be replaced when device is completely without voltage.



- ▶ Flip the ejector tabs on each side of the slot outwards (1).
- ▶ Remove the memory module from its slot (2).

Processor



Processors are components which are extremely sensitive to electrostatic discharges and must be handled with caution. After taking a processor out of its protective wrapper or out of a socket, set it on an insulated antistatic surface with the smooth side down. Never slide a processor over a surface.

Installing/removing processor

Requirements

- server has been switched off
- power cords have been disconnected
- left side cover has been removed
- air duct has been removed

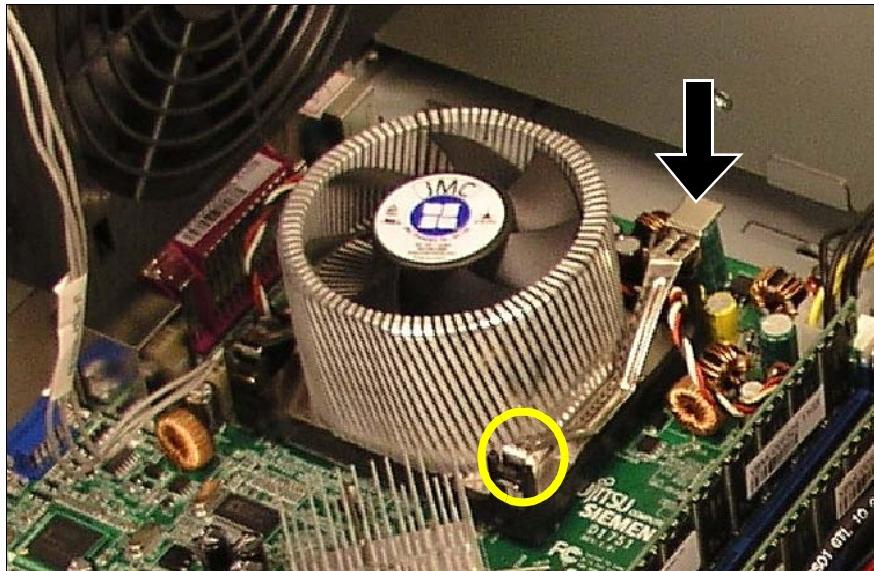
Before removing the processor from its socket, the heat sink with the processor fan must be removed. Heat sink and processor fan are one unit and they are removed or installed together.

The heat sink is guided and retained by a separate frame on the system board, and is closely connected to the heat sink mounting by two retaining clips. These retaining clips press the heat sink onto the processor surface.

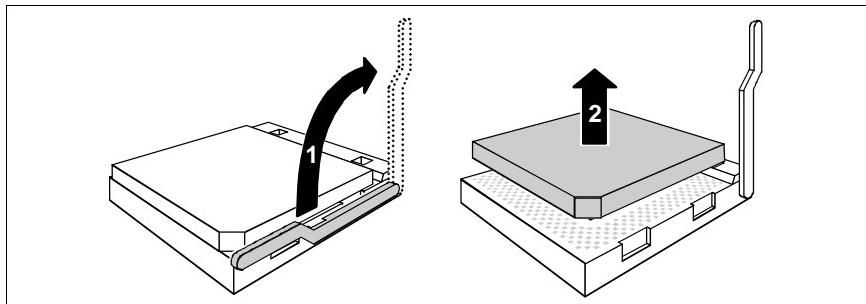
Removing the heat sink with the processor fan

Processor heat sinks can become very hot.

Wait until the heat sink has cooled before removing it.



- ▶ Unplug the processor fan cable from the connector on the system board.
- ▶ First unlock the retaining clip on one side (see arrows) by pressing it down, then swivel it upwards and take the hook out of the other side (see circle).
- ▶ Remove the retaining clip on the other side in the same way.
- ▶ Take the heat sink carefully out of the heat sink mounting.

Installing/removing the processor module

- ▶ Release the socket lever by pressing it sideways and lifting it up to a 90° angle (1).
 - i** There will be some resistance.
 - ▶ Carefully lift the installed processor module out of the socket (2).
 - ▶ Position the new processor above the socket, and insert it into the socket by carefully pushing downwards.
- !** The processor can only be installed in one direction in the socket. Pay attention to the marking (triangled, golden colored) on one of the corners for the correct alignment. To avoid damaging the pins and the processor, do not force the processor into the socket.
- ▶ Lock the processor in the socket by pushing the socket lever back in place.
 - ▶ Clean the surface of the processor.

Preparing the heat sink with the processor fan

- ▶ Remove any resting parts of the conductive paste from the underside of the heat sink.
 - ▶ Clean the underside of the heat sink with a solvent (e.g. Isopropyl alcohol) or a rag.
- i** On the market rags are available which are moistened with Isopropyl alcohol, named CleanTex TexPad 801.

Preparing the processor

- ▶ Put some conductive paste on the blank surface of the processor.
- ▶ Apply the conductive paste thin and even.

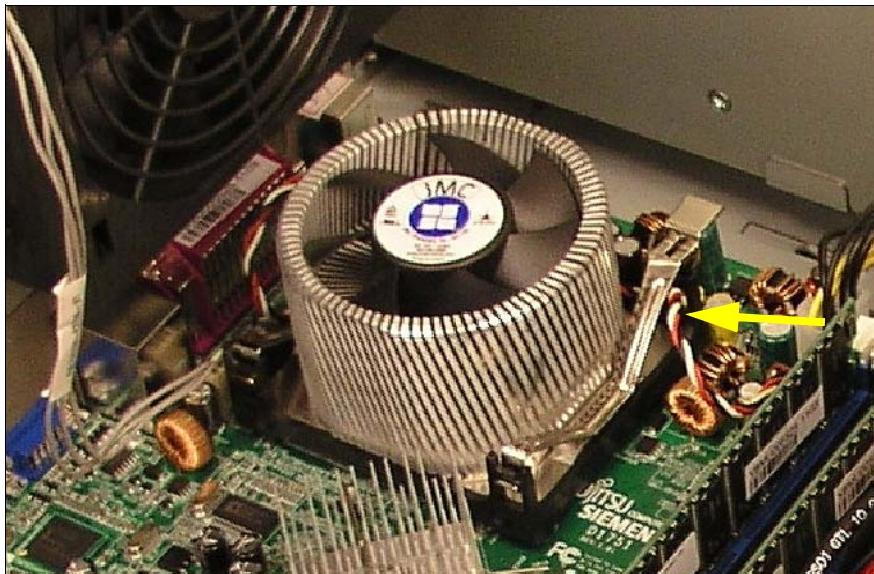


Ensure that the surface is **completely** covered with the conductive paste.

Installing the heat sink with the processor fan

Never install a processor without a heat sink; the processor can overheat and lead to failure of the processor and the system board.

- ▶ Put the prepared heat sink (with the processor fan) into the heat sink mounting.
 - ▶ Hang up the retaining clip on one side of the heat sink mounting and then press it down on the other side.
- Fix the heat sink with one hand to avoid that it can tilt.
- ▶ Mount the second retaining clip in the same way.



- ▶ Pass the processor fan cable through the retaining clip (see arrow).
- ▶ Connect to processor fan cable to the connector CPU_FAN1 on the system board.

i The clock frequency of the processor is set automatically. It cannot be changed manually.

Lithium battery

So that important system information (e.g. configuration) can be permanently saved, two lithium batteries are installed which supply the CMOS memory with a current. A corresponding error message is displayed when the battery voltage is too low or the batteries are empty. Both lithium batteries must be replaced immediately.

Replacing the lithium battery

Requirements

- server has been switched off
- power cords have been disconnected
- left side cover has been removed

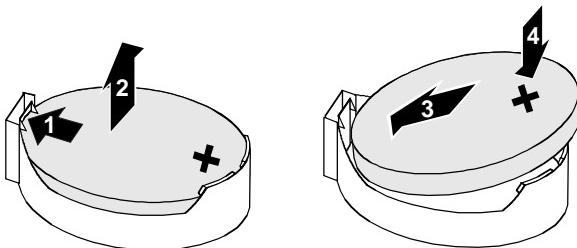


Incorrect replacement of the lithium battery may lead to a risk of explosion.

The lithium battery must be replaced with an identical battery or with a battery type recommended by the manufacturer (CR2032).

Do not throw lithium batteries into the trashcan. Please dispose of batteries in accordance with local government regulations.

Make sure that you insert the battery the right way round. The plus pole must be on the top!



- ▶ Push the locking spring in the direction of the arrow (1) so that the lithium battery snaps out of the holder, and pull the battery out (2).
- ▶ Slide the new battery of identical type into the holder (3), and push it in the direction of the arrow (4) until it locks in place.



If the batteries are not entirely empty and you replace them one after the other (that means they are not removed at the same time), the settings remain stored. Nevertheless check the date and the internal time after replacing the two batteries.

Changing the system board

Removing the system board

Requirements

- server has been switched off
- power cords have been disconnected
- left side cover has been removed

- Lay the floorstand model on a flat surface with the uncovered side facing upwards.

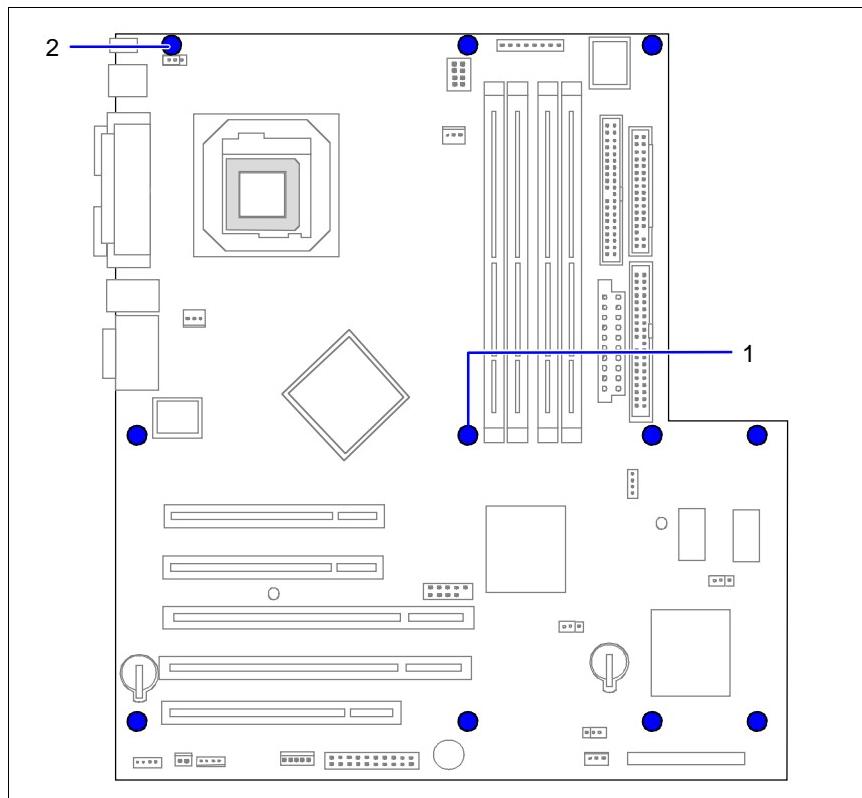


This step has to be carried out by two people as the server may weight up to 28 kg.

- Remove the memory modules.
- Remove all controllers from their slots.
- Remove the air duct.
- Remove the system fan.
- Remove the processor heat sink.
- Remove the processor.
- Remove all cables which may be connected to the system board.



Take note of the slots of the controllers and the cabling.



1	Centre bolts	2	Centre bolts
---	--------------	---	--------------

- ▶ Remove the 11 screws from the system board.
- ▶ Lift the system board for about 1 cm on the inner side of the server.
Thereby you lift the system board out of the guide rings of the centre bolts.
- ▶ Push the system board 1 cm in the direction of the hard disk cage.
Proceeding this way the connectors and the two light emitting diodes are pulled out of the connector panel.
- ▶ Carefully remove the system board from the casing by grasping the PCI slots.

Installing the system board

- ▶ Insert the system board by holding it at a slight angle and sliding the connectors into the connector panel.
There will be some resistance.
 -  Make sure that the two light emitting diodes (positioned beneath keyboard/mouse socket) are not damaged.
 - ▶ Adjust the system board with the two centre bolts (1+2 in graphic on page before).
 -  Make sure that the guide rings engage properly in the drill holes of the system board. After this it is no longer possible to push the system board sideways.
 - ▶ Fasten the system board with the 11 screws.
 - ▶ Reconnect the cables to their original connectors.
 -  For the cabling see [page 02-TX150S2-59](#).
 - ▶ Reinstall the processor and the processor heat sink.
 - ▶ Reinstall the system fan.
 - ▶ Reinstall the air duct.
 - ▶ Reinsert the controllers to their slots.
 - ▶ Reinsert the memory modules into their memory banks.
-  After installing the new system board, it is absolutely necessary to update the BIOS to ensure proper operation.

Power supply

The server can be equipped with a standard power supply or with a redundant power supply. In the basic configuration, the server is equipped with the standard power supply unit.

Standard power supply

Replacing standard power supply unit

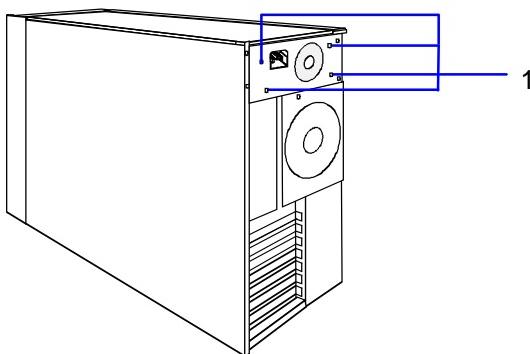
Requirements

- server has been switched off
- power cords have been disconnected
- left side cover has been removed

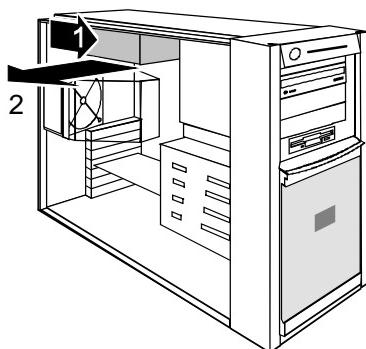
i You can replace the power supply without removing the adapter sheet.

- Disconnect all cables of the power supply.

i Take note of the cabling.



- Remove the four mounting screws of the power supply at the rear (1).



- ▶ Slide the power supply somewhat towards the inside (1) to detach it from the brackets in the side cover and take it out towards the side (2).

Installing the power supply is done in the reverse order.

See chapter internal cabling from [page 02-TX150S2-59](#) for the cable layout of the power supply.

Redundant power supply

The redundant power supply consists of up to two power supply modules.

To achieve power supply redundancy the installation of the second power supply module is required. If one power supply module fails, the other power supply module ensures unimpaired further operation. The defective power supply module can be replaced during operation (hot-plug power supply). If the green status indicator remains dark, then the power supply module is defective and must be replaced.

The power supply modules automatically adjust to the proper voltage range.



You can only mount power supply modules of the same type.

Replacing power supply module

! Replacing a power supply module in a non-redundant configuration (the second power supply module was not installed) **requires** that the server has been switched off.

- Unplug the power cord from the connector of the power supply module.



- Push the locking slide upwards and pull the green handle frontwards.
- Pull the power supply module out of the installation bay.



- ▶ Push the new power supply module into the installation bay.
- ▶ Lift the green handle somewhat upwards so that the forked levers (see circles) can fit to the noses (see arrows).
- ▶ Push the green handle downwards until the locking slide engages.
- ▶ Plug the power cord to the connector of the power supply module.

Adding second power supply module

The installation bay of the second power supply module is equipped with a dummy module.



- ▶ Remove the screw.
- ▶ Lift the lower side of the dummy module somewhat until it disengages on the upper side (see circle) and take it out.

 Do not dispose of the dummy module. For cooling, protection against fire and in order to comply with EMC regulations, you must refit the dummy module if you remove the power supply module and no new power supply module will be installed.

- ▶ Push the new power supply module into the installation bay.
- ▶ Lift the green handle somewhat upwards so that the forked levers can fit to the noses.
- ▶ Push the green handle downwards until the locking slide engages.
- ▶ Connect the power cord.

Replacing power backplane

Requirements

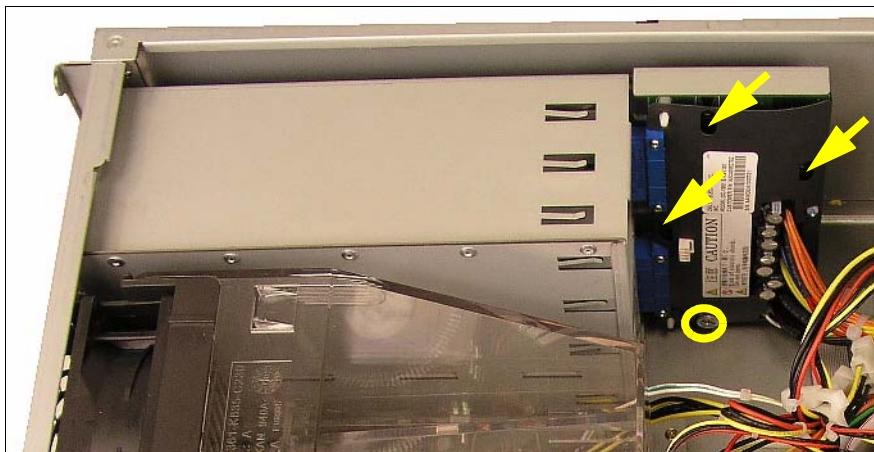
- server has been switched off
- power cords have been disconnected
- left side cover has been removed
- all power supply modules have been removed

The power backplane is mounted on the power supply cage. The power supply cables are unremovable connected to the power backplane.

- Lay the floorstand model on a flat surface with the uncovered side facing upwards.



This step has to be carried out by two people as the server may weight up to 28 kg.



- Remove the air duct.
- Disconnect all power cables of the redundant power supply.
For the cabling see [page 02-TX150S2-59](#).
- Remove the knurled screw (see circle) which fasten the power backplane to the power supply cage.
- Push the power backplane somewhat downwards to release it from the three guiding bolts (see arrows).
- Take the power backplane out of the server.

The installation of the new power backplane is done in reverse order.

Upgrading from standard PS to redundant PS

The standard power supply can be replaced by a redundant power supply. The redundant power supply consists of up to two power supply modules. The upgrade kit contains only one power supply module (for power supply redundancy the second power supply module must be additionally ordered).

The upgrade kit for hot-plug power supply consists of the following parts:

- power supply cage with power backplane (incl. power supply cables)
- locking rail
- one power supply unit
- dummy module (if only one power supply module is installed, you have to install the dummy module in the second bay)
- several screws
- anti-tilt bracket

Requirements

- server has been switched off
- power cords have been disconnected
- left side cover has been removed
- air duct has been removed



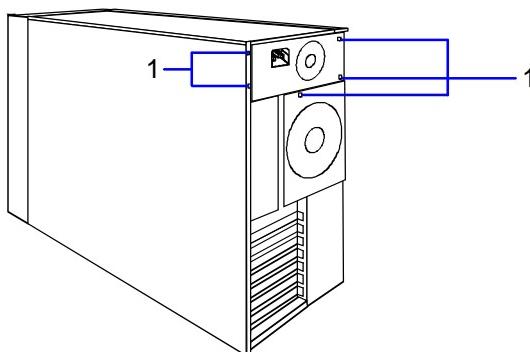
After installing the redundant power supply the SDR (sensor data record) data base must be updated. For this sequence you need a BIOS flash diskette. This diskette contains the newest BIOS version, the BMC firmware and the SDR data.

- ▶ Write a BIOS flash diskette by down loading the required data from the software pool under
<http://service.abg.fsc.net/support/softwareAssist.asp>.

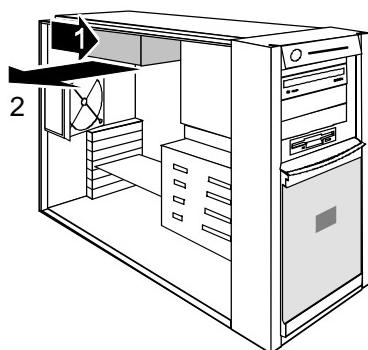
Removing standard power supply

In this case you have to remove the standard power supply together with the adapter sheet.

- ▶ Disconnect all cables from the standard power supply.



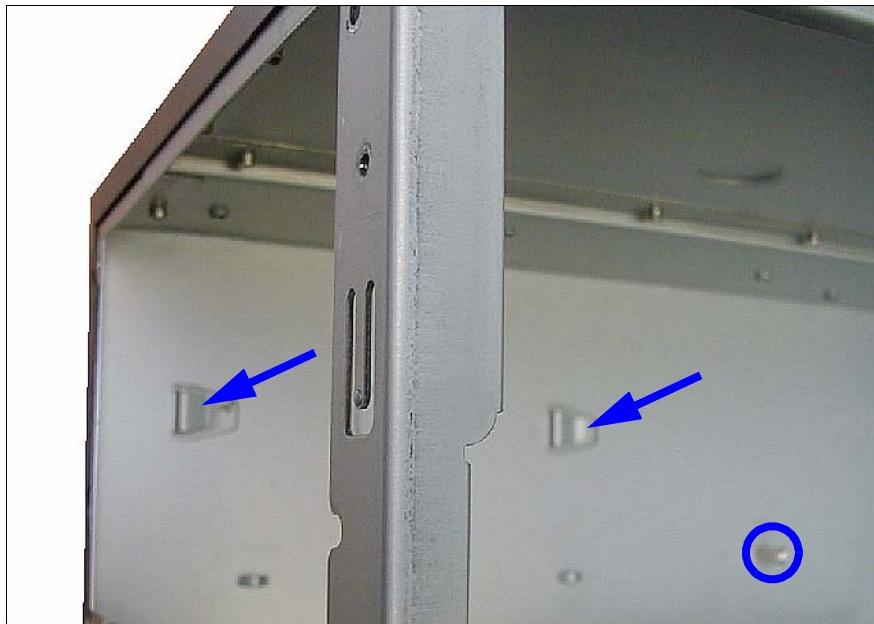
- ▶ Remove the five mounting screws (1) which attach the adapter plate of the standard power supply to the housing.



- ▶ Slide the standard power supply somewhat towards the inside (1) to detach it from the brackets in the side cover and take it out towards the side (2).

Installing redundant power supply

- ▶ Mount the power backplane on the power supply cage.

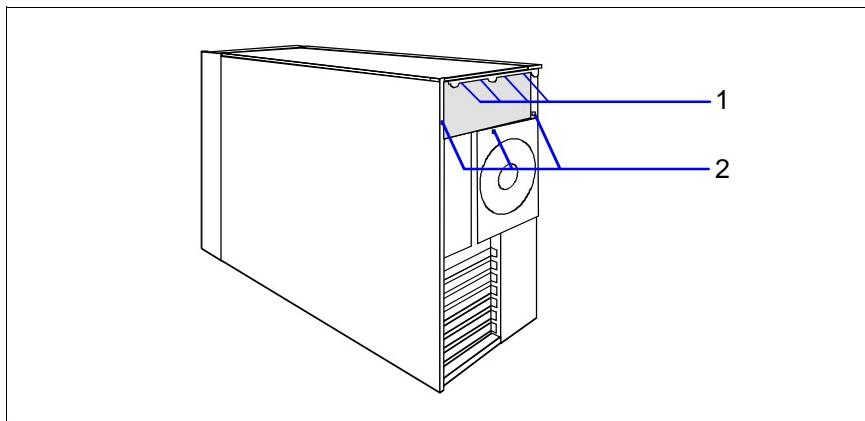


- ▶ Install the empty power supply cage.

 For installing make sure that the power supply cage fits into the brackets in the side cover (arrows) and that the screw on the rear side of the power supply cage is positioned correctly on the distance holder (circle).

Make sure that no cables are damaged.

- ▶ Fix the screw.



- ▶ Fix the locking rail with four screws (1) on the rear side of the server.
- ▶ Fix the power supply cage with three screws (2).
- ▶ Connect all boards and devices to the new power supply. For the cabling see [page 02-TX150S2-59](#).
- ▶ Reinstall the air duct.
- ▶ Insert the power supply module.



The redundant power supply module automatically adjusts to the proper voltage range.

- ▶ Install the dummy module.
- ▶ Close the server.
- ▶ Mount the anti-tilt bracket (see [page 02-TX150S2-20](#)).
- ▶ Connect the power supply module to a grounded power outlet with the power cable supplied.
You will find the description of the indicators of the power supply module on [page 02-TX150S2-36](#).

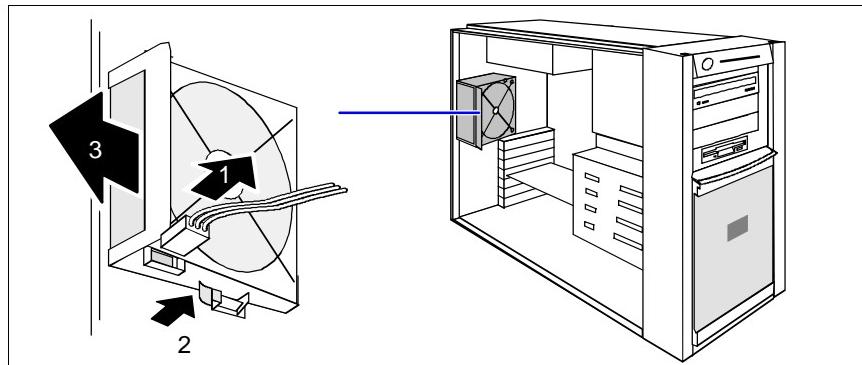


After installing the redundant power supply the SDR (sensor data record) data base must be updated. For this sequence you need the BIOS flash diskette prepared before. This diskette contains the newest BIOS version, the BMC firmware and the SDR data.

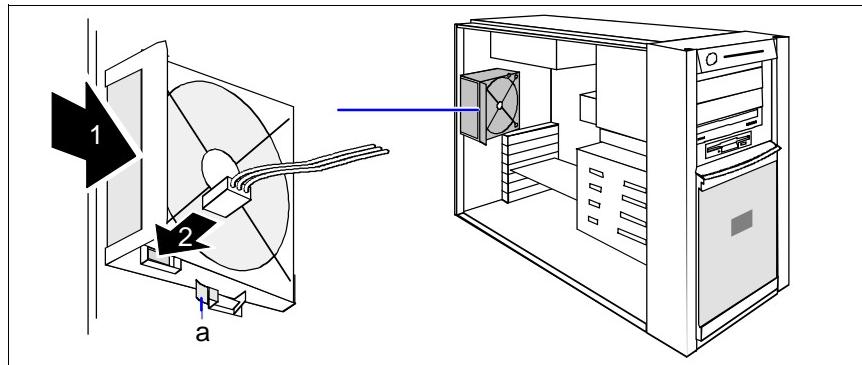
Replacing the system fan

Requirements

- server has been switched off
- power cords have been disconnected
- left side cover has been removed
- air duct has been removed



- ▶ Pull the cable off the fan (1).
- ▶ Press on the clip (2) from behind and remove the fan (3).



- ▶ Place the new fan in the bay (1). The proper fan position can best be judged from the outside at the rear side of the server. When doing so, make sure the fan clip (a) engages properly.
- ▶ Connect the cable to the fan (2).

Replacing the IDTEMP combo

This board includes two important system components:

- EEPROM for the chassis ID and ident number of the server
- temperature sensor for monitoring the environment temperature

The data for the EEPROM, and the current temperature values as well, are transmitted to the system board via the connected I²C bus.

The IDTEMP combo must be correctly installed in order to run an exact temperature monitoring, to project the front end in the server management or install the server using *ServerStart*.



The information provided on the IDTEMP combo must not be altered.
Exception: If the chassis version is converted from floorstand model to rack model, the server identification must be reevaluated in order to match the image displayed in the server management system (*ServerView*).



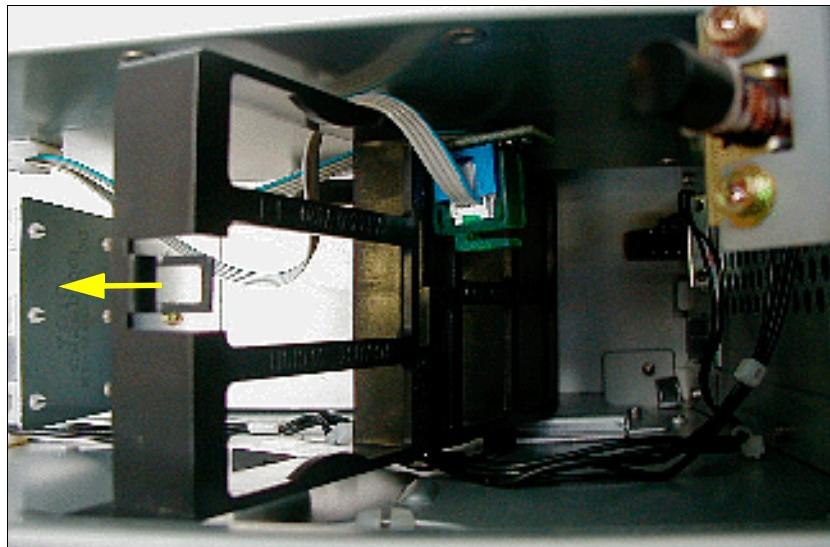
The IDTEMP combo may not be changed because of the informations which are in the EEPROM to identify the system.

If the combo is defective, a spare part must be ordered specially by specifying the ident number (see type label).

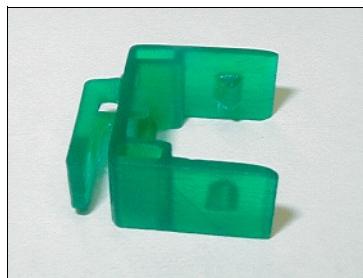
The IDTEMP combo is situated on a separate holder under the SCSI hard disk cage.

Requirements

- server has been switched off
- power cords have been disconnected
- left side cover has been removed



- ▶ Push the holder in direction of the arrow.
- ▶ Take out the holder carefully.



The green plastic part is the colored marking of a 'touch point'.

- ▶ Remove the green plastic part from the connector on the IDTEMP combo.
 - ▶ Disconnect the I²C bus cable from the connector.
-  Notice the leading of the cable.
- ▶ Pull the IDTEMP combo out of its holder.

Installing is done in reverse order.

Replacing intrusion detection switches

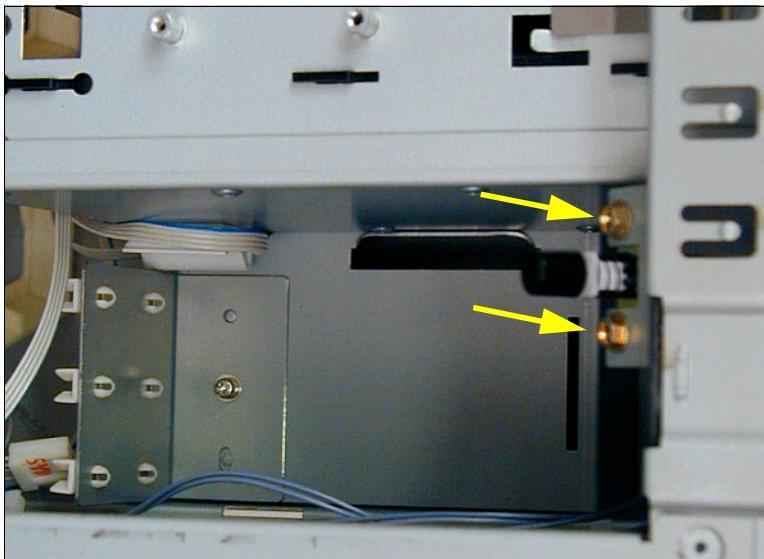
In the PRIMERGY TX150S2 floorstand model two intrusion detection switches monitor the removing of the left side cover and the hard disk cover. One switch is situated on right bottom side of the left housing side, the other on the front cover, next to the SCSI hard disk cage.

In the rack model one intrusion detection switch monitors the removing of the top cover. The second intrusion detection switch is deactivated by the rack front cover.

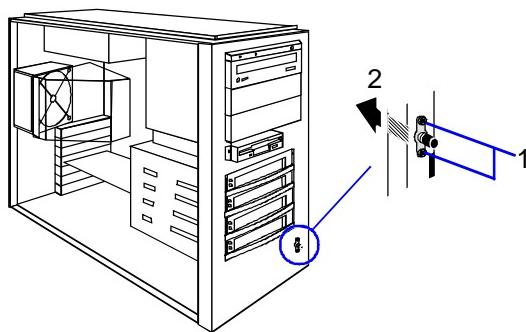
- i** The two intrusion detection switches are serially connected on one cable and have to be replaced in pairs.

Requirements

- server has been switched off
- power cords have been disconnected
- left side cover has been removed
- front cover has been removed
- IDTEMP combo with holder is removed



- Remove both screws of the first intrusion detection switch which is mounted on the housing frame and take it out.



- ▶ Remove both screws of the second intrusion detection switch which is mounted on the front cover (1).
- ▶ Reach for the intrusion detection switch through the left side opening under the SCSI hard disk cage and pull the intrusion detection switch backwards through the recess in the front cover (2).
- ▶ Disconnect the end of the intrusion detection switch cable from the intrusion connector on the system board (see [page 02-TX150S2-43](#)).

Installation of the new intrusion detection switches is to be performed in reverse order.

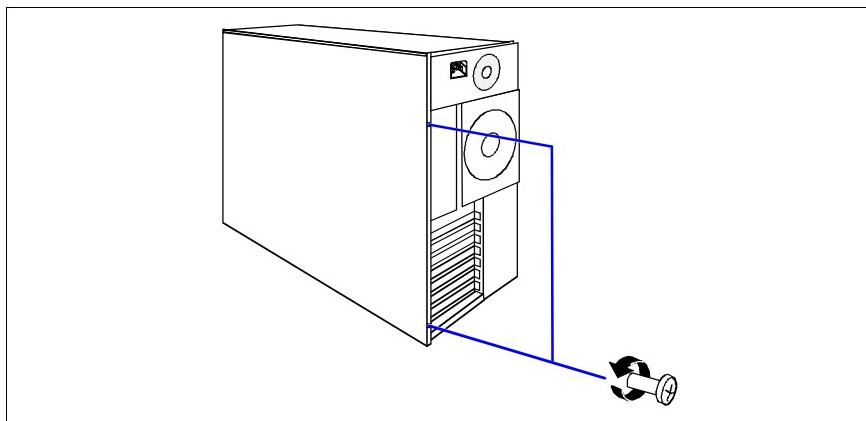
Conversion of the housing model

From floorstand model to rack model

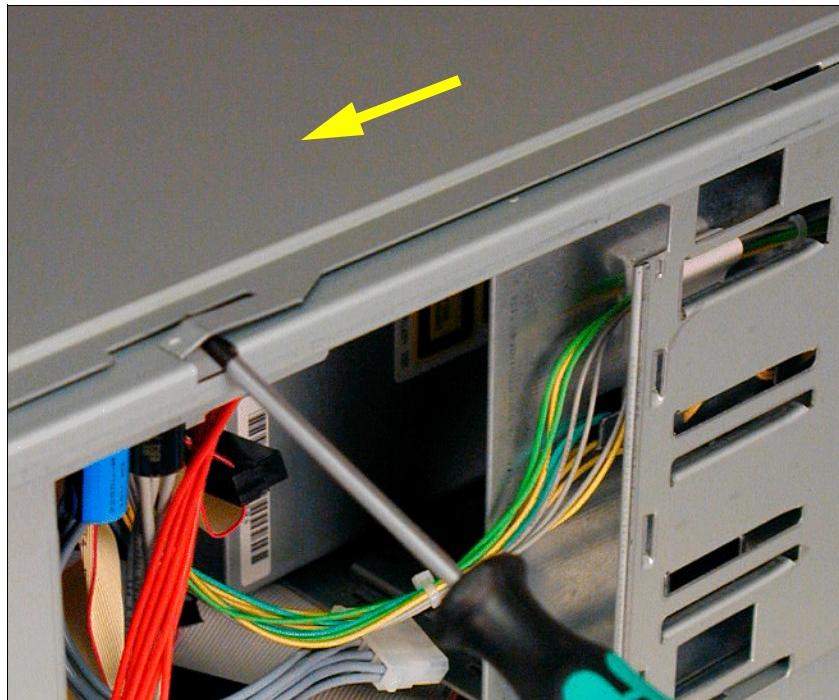
Requirements

- conversion kit S26361-F2618-L220
- floorstand model has been switched off
- power cords have been disconnected
- left side cover has been removed
- hard disk cover and cover of the accessible drives has been removed (they are no longer needed for the rack model)
- for floorstand model with redundant power supply:
anti-tilt bracket has been removed
- front cover has been removed (is no longer needed for the rack model, the conversion kit contains an other front cover)

Remove the right side cover and the top cover (one part together) as follows:



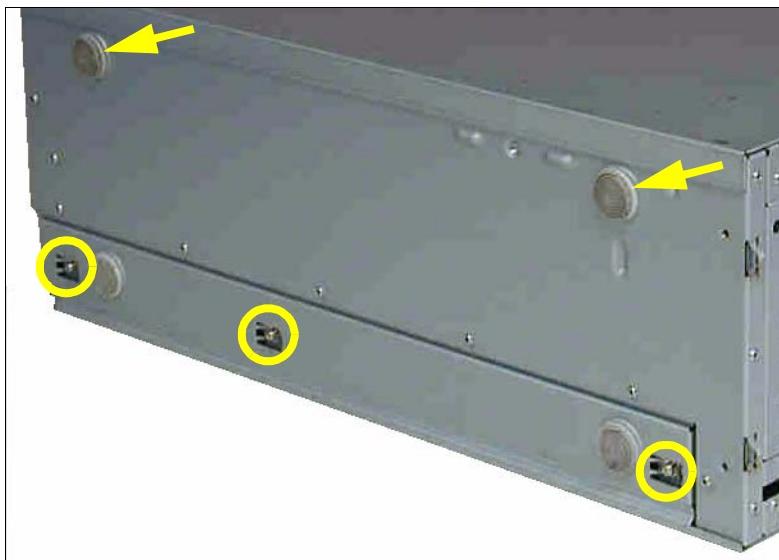
- Unscrew the two screws on the rear side.



- ▶ Prise up the flange on the left housing side carefully with a screws driver and push the right side cover and the top cover slightly to the rear (arrow).
- ▶ Take out the right side cover and the top cover sideways (this part is no longer needed for the rack model).
- ▶ Lay the server on a flat surface with the uncovered side facing upwards.



This step has to be carried out by two people as the server may weight up to 28 kg.

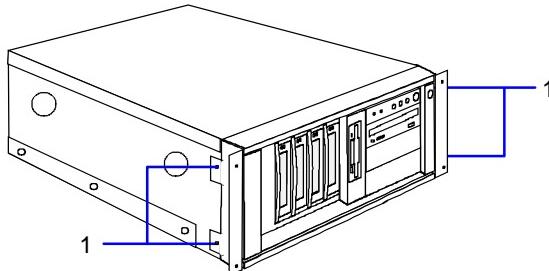


- ▶ Remove the two upper rubber feet (arrows) on the left side.
- ▶ Remove the three screws (circles) and take out the rail with the two lower rubber feet.

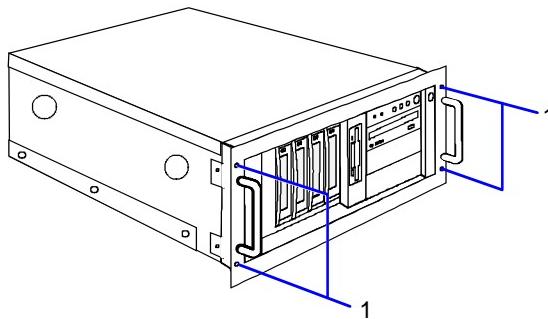
The drive cage is designed to make it possible to remove easily the accessible drives and the operating panel module and remount them with being turned to the left by 90°.

- ▶ Remove the 5.25" drives from the drive cage (see page 02-TX150S2-94).
- ▶ If needed remove the dummy covers.
- ▶ Pull the operating panel module out of its bay as far as it is possible to unplug the flat ribbon cable and the USB cable from the operating panel board. Unplug both cables.
- ▶ Remove the operating panel module.

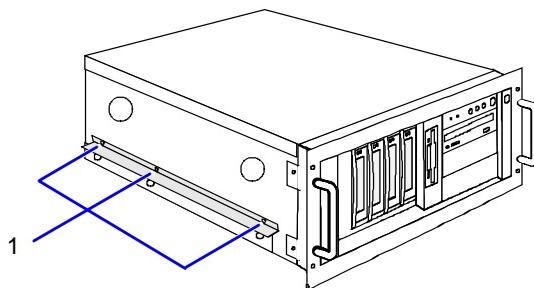
- ▶ Turn the operating panel module to the left by 90°.
- ▶ Push the operating panel module (1) into the upper bay about half the way
- ▶ Plug the flat ribbon cable and the USB cable on the operating panel board.
- ▶ Push the operating panel module completely into its bay.
- ▶ Turn the 5.25" drives and the dummy covers to the left by 90° and reinstall them in the drive cage.
- ▶ Mount the front cover.
- ▶ Mount the former left side cover (floorstand model) for top cover (see page 02-TX150S2-82).



- ▶ Screw the angled mounting bracket of the rack front panel to the server on the left and on the right side using four countersunk head screws (1).



- ▶ Screw the rack front panel to the mounting bracket on the left and on the right side using four countersunk head screws (1). It must be possible for the front panel to project downwards over the edge of the table.



- ▶ Screw the two carrier rails onto server at the left and right with three screws (1).
- ▶ Mount the server into the rack (description see next chapter).

In order to display the rack server correctly under *ServerView*, the server type has to be set:

- ▶ Insert the *ServerStart* CD-ROM into the drive.
- ▶ Call the program SCU_Chassis Model Conversion under \Tools\System Configuration and change the server type into "PRIMERGY TX150S2 Rack".

Now the conversion is completed.

Fit assembly kit and rack-mount the server



If the rack model is integrated in an already existing installation that receives power from an industrial (public) power supply network with the IEC309 connector, the (public) power supply protection must comply with the requirements for the non-industrial (public) power supply networks for the type A connector.

The server must not be mounted into the height unit at the top of a rack, because in this case it would not be possible to change the boards when the slide-in unit is pulled out as far as possible.

As the server may weigh up to 28 kg, at least two people are required in order to install it into the rack.

The rack may tip over if more than one heavy unit is removed.

Preparation

- In order to make the rack model lighter during the installation, all redundant power supply modules and SCSI hard disk drives should be removed.



Check, if the drives are marked, so that they later can be replaced into their original slots.

Rack installation

Two rack mounting kits are available:

S26361-F2734-E/L31:

Mounting kit for mounting servers in:

- 19" racks (DataCenter and PRIMECENTER rack)
- all server racks confirming to EIA standard EIA-310-D

S26361-F1331-L7

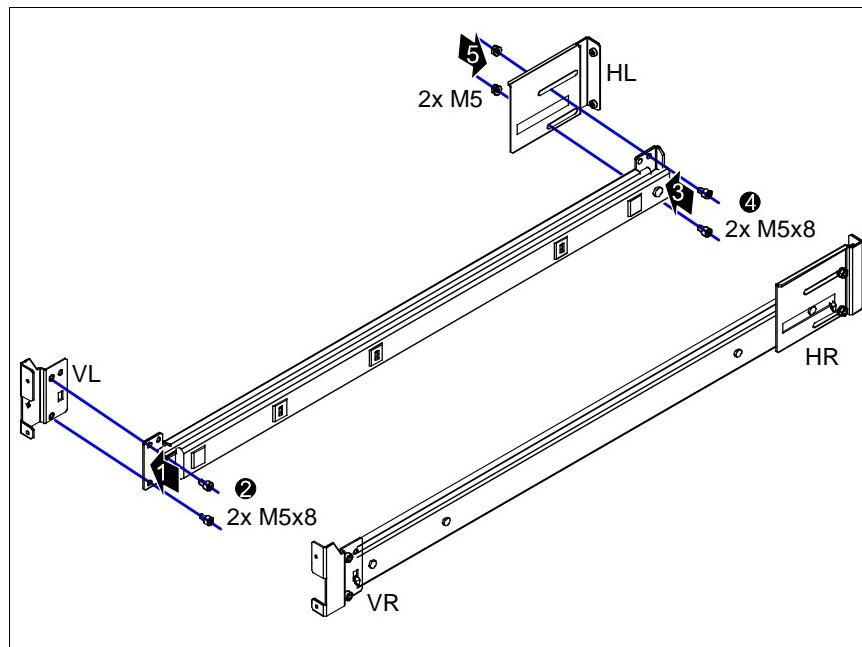
Mounting kit for mounting servers in:

- 42/23 U rack

Mounting in the PRIMECENTER rack

For mounting the server in the PRIMECENTER rack the following parts from the rack mounting kit S26361-F2734-E/L31 are necessary:

- support angle
- two telescopic rails (assembled)
- four assembly brackets (VL; VR; HL; HR)
- eight plug washers (figure below)

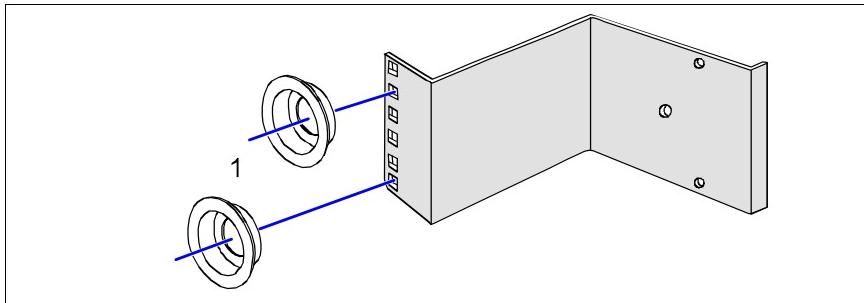


- ▶ Fasten the delivered assembly bracket VL on the front end of the left telescopic rail (1) with two screws M5x8 (2).
- ▶ Fasten the delivered assembly bracket HL on the rear end of the left telescopic rail (3) with two screws M5x8 (4) and two hexagonal flange nuts M5 (5).
- ▶ Repeat the procedure also for the right telescopic rail and the corresponding assembly brackets VR and HR.

For mounting the left telescopic rail in the PRIMECENTER rack, the delivered support angle must first be mounted on the rear left support upright. The angle must be mounted level with the lower edge of the device.

- ▶ Mount the support angle at the appropriate height on the left rear support upright as described in the technical manual of the PRIMECENTER rack.

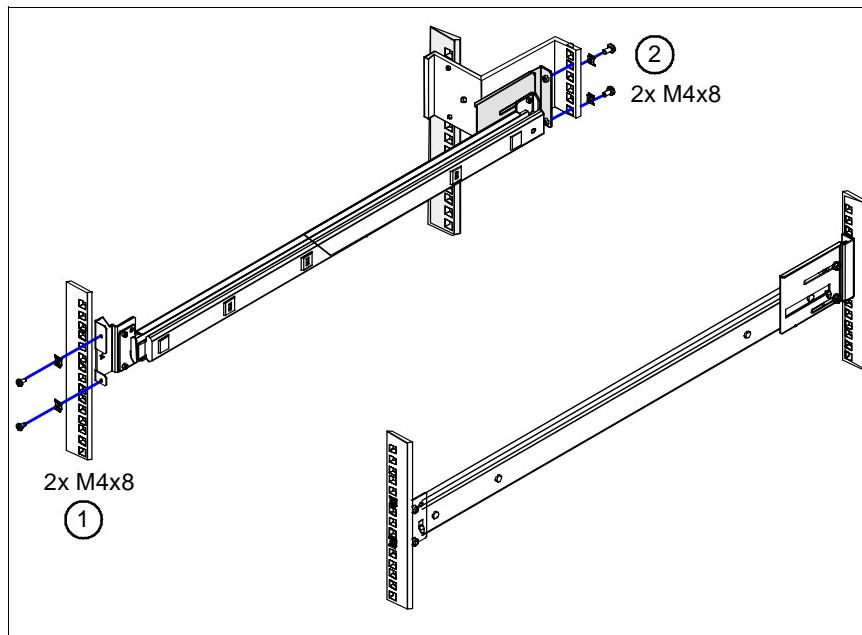
To fasten the telescopic rails, no flange nuts are necessary since the assembly brackets are equipped with threaded holes. For adjustment in each case two plug washers must be pre-mounted at the support uprights and the support angle:



- ▶ Place the plug washers (1) in the holes of the support uprights and/or of the support angle at the marked attachment points.



For better orientation the height units are marked on the support uprights.



- ▶ Using the supplied Allen key (No. 5) secure the end of the telescopic rails with the corresponding assembly brackets with two screws M4 each (1 and 2) in the rack at the support uprights and/or at the support angle.

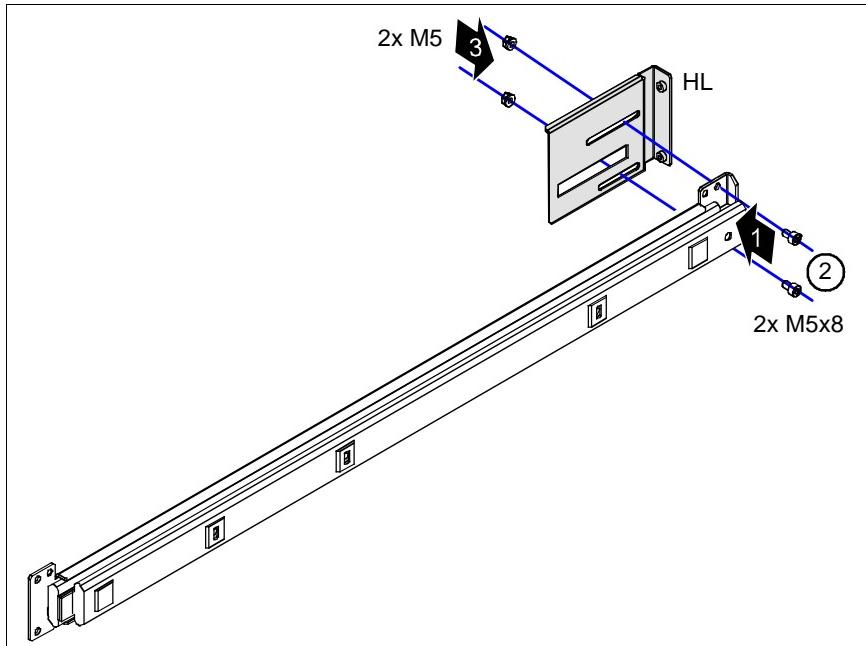
Note with the fact that two plug washers each are used in the appropriate openings of the support uprights and/or the support angle.

- ▶ Adjust if necessary the length of the telescopic rails by using the oblong holes of the assembly brackets HL and HR.
- ▶ Mount the PRIMECENTER rack cable management (articulated cable guide) as described in the technical manual of the PRIMECENTER rack.
- ▶ Mount the server (see [page 02-TX150S2-154](#)).
- ▶ Route the cables with the inserted server as described in the technical manual of the PRIMECENTER rack.

Mounting in the DataCenter rack

For mounting the server in the PRIMECENTER rack the following parts from the rack mounting kit S26361-F2734-E/L31 are necessary:

- support angle
- two telescopic rails (assembled)
- assembly bracket HL
- two plug washers



- ▶ Fasten the delivered assembly bracket HL on the rear end of the left telescopic rail (1) with two screws M5x8 (2) and two hexagonal flange nuts M5 (3).

When mounting the left telescopic rail in the DataCenter rack, the supplied support angle must first be mounted level with the device on the rear left support upright.

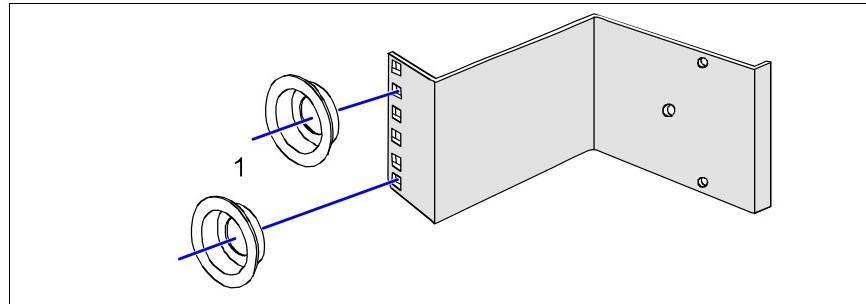
- ▶ Refer to the assembly instructions in the service item for the DataCenter rack (see module „System components“).

- ▶ Using the mounting aid (stencil) mark the position of the attachment points for the telescopic rails and for the server (front panel) on the support uprights (five height units).

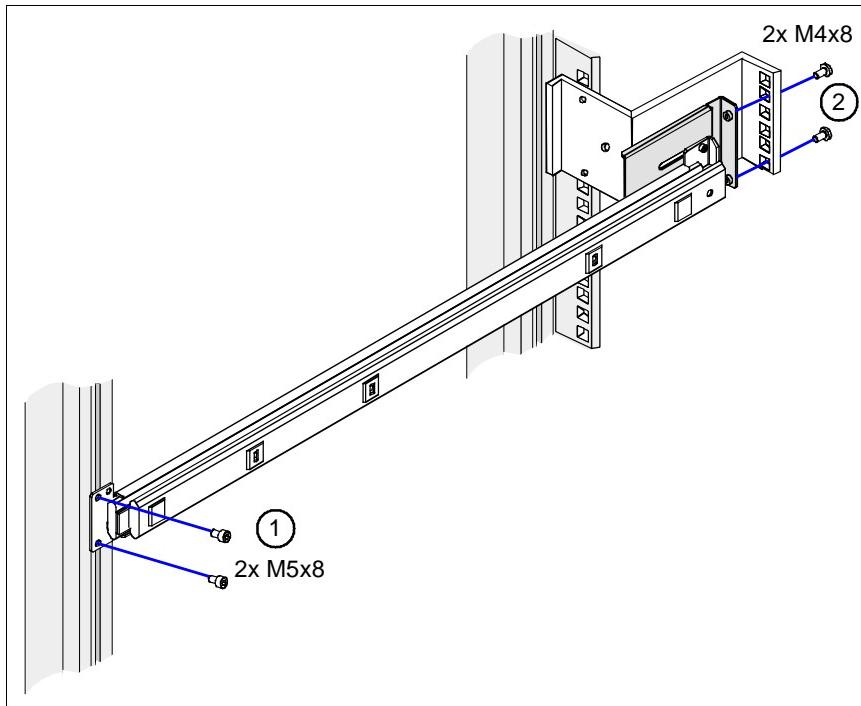
Refer to the information on the mounting aid.

- ▶ Mount the support angle at the appropriate height on the left rear support upright as described in the service item of the DataCenter rack (see module „System components“).
- ▶ Place the spring nuts to fasten the telescopic rails in the groove of the support uprights at the marked attachment points.
- ▶ If necessary, adjust the position of the nuts in the groove until they lock into the correct position.

To fasten the left telescopic rail to the support angle, no flange nuts are necessary since the assembly bracket (HL) is equipped with threaded holes. For adjustment two plug washers must be pre-installed in the support angle:



- ▶ Place the plug washers (1) at the marked attachment points in the corresponding holes of the support angle.



The assembled telescopic rail and assembly bracket (HL) will be secured on the front left support upright and on the support angle.

- ▶ Using the supplied Allen key (No. 5) secure the end of the telescopic rail without assembly bracket with two screws M5 (1) in the rack at the front left support upright.

Please note that the guide nubs of the telescopic rail next to the spring nuts must fit into the holes in the support upright.

- ▶ Secure the end of the telescopic rail assembled with the bracket (HL) with two screws M4 (2) on the support angle in the rack.

Note with the fact that the two plug washers are inserted in the appropriate openings of the support angle.

- ▶ Adjust if necessary the length of the telescopic rail by using the oblong holes of the assembly bracket (HL).

- ▶ Secure the telescopic rail without bracket (HL) with two screws M5 each in the rack at the right support uprights.
Please note that the guide nubs of the telescopic rail next to the spring nuts must fit into the holes in the support uprights.
- ▶ Mount the DataCenter rack cable management (articulated cable guide) as described in the service item of the DataCenter rack (see module „System components“, item „DataCenter rack“, section „Cable management“).
- ▶ Mount the server (see [page 02-TX150S2-154](#)).
- ▶ Route the cables with the inserted server as described in the service item of the DataCenter rack (see module „System components“, item „Data Center rack“, section „Routing cables“).

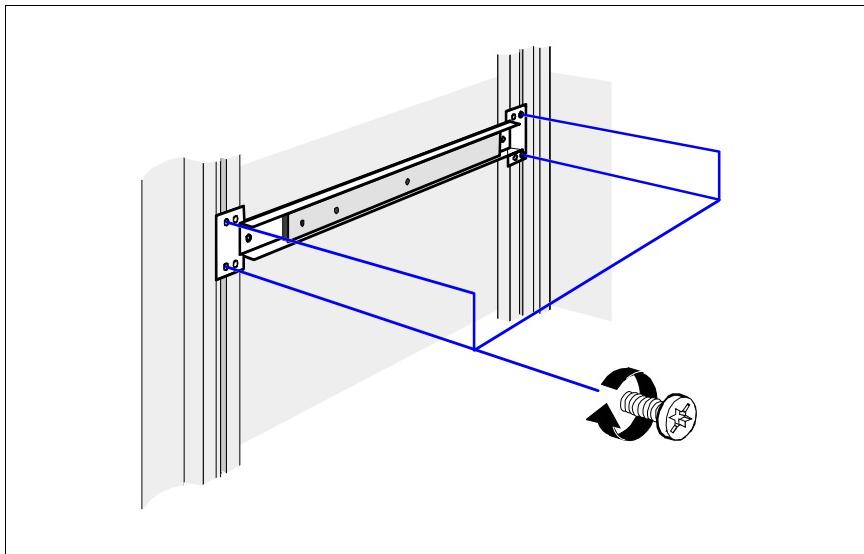
Mounting in the Classic rack

For mounting the server in the Classic (19-inch) rack the following parts from the rack mounting kit S26361-F1331-L7 are necessary:

- two telescopic rails (assembled)
- protective hose for fibre channel optical waveguide cable
- ▶ Refer to the assembly instructions in the technical manual for the Classic (19-inch) rack.
- ▶ Using the mounting aid (stencil) mark the position of the attachment points for the telescopic rails and for the server (front panel) on the support uprights (five height units).

Refer to the information on the mounting aid.

- ▶ Place the spring nuts to fasten the telescopic rails in the groove of the support uprights at the marked attachment points.
- ▶ If necessary, adjust the position of the nuts in the groove until they lock into the correct position.



- ▶ Using the supplied Allen key (No. 5) secure the two telescopic rails with two screws M5 each in the rack at the right and left support uprights.

Please note that the guide nubs of the telescopic rails next to the spring nuts must fit into the holes in the support uprights.

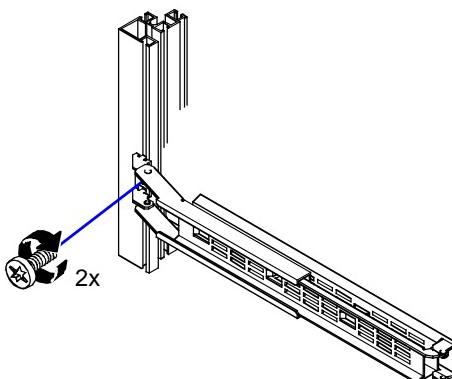
- ▶ Mount the server (see page 02-TX150S2-154).

Mounting the articulated cable carrier (cable management)

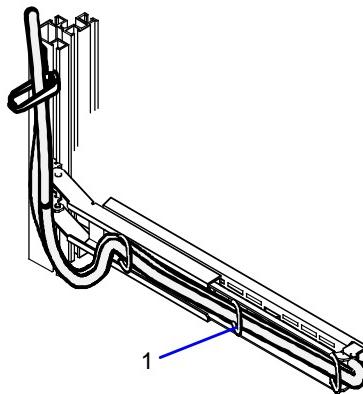


In contrast to the instruction in the technical manual for the 19-inch (Classic) rack the articulated cable carrier is fastened only to the support upright - **not at the server**.

- ▶ To secure the articulated cable carrier place two spring nuts in the groove of the rear right support upright. This must be done at a height that matches the position of the cables on the server that the articulated cable carrier is supporting.



- ▶ Fix the articulated cable carrier with two mounting screws on the rear right support upright.

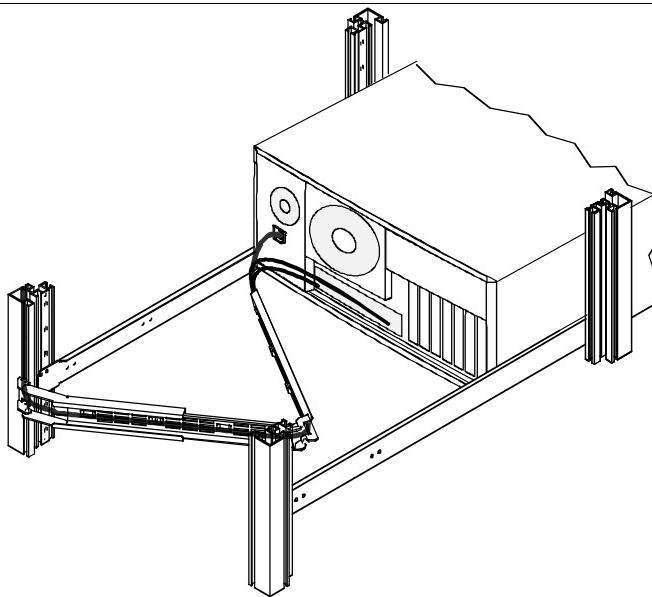


- ▶ Route the cables as shown in the figure and secure them to the articulated cable carrier with cable ties (1).

⚠ In order to avoid damaging fibre channel optical waveguide cables, these must be encased within a protective hose (see page 02-TX150S2-152).

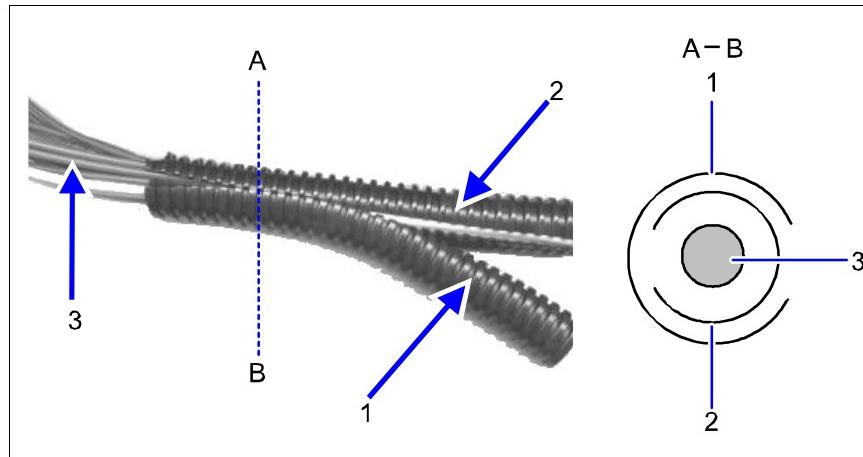
As the cables are secured to the articulated cable carrier, when the server is pulled out, the articulated cable carrier will extend.

Once the cable management has been installed as described, the server can be pulled out forwards as required for service.

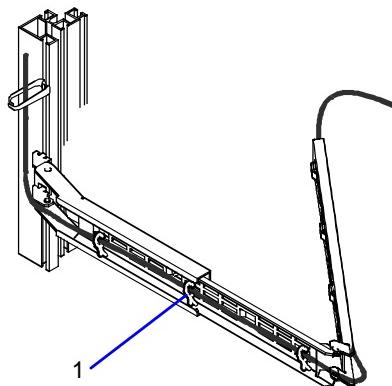


Routing the Fibre Channel Optical Waveguide cable

The protective hose (length approx. 1m) supplied with the mounting kit has a separable design.



- ▶ Separate the outside protective sheath (1) from the inside sheath.
 - ▶ Carefully lay the fibre channel optical waveguide cable (3) into the inside protective sheath (2).
 - ▶ Push the outside protective sheath (1) over the inside protective sheath.
- ⚠** The sheath openings must be arranged to be on opposite sides as illustrated in the sectional view A-B.



- ▶ Route the fibre channel optical waveguide cable on the articulated cable carrier as shown in the figure and secure them with cable ties (1).

! Please make sure that the fibre channel optical waveguide cable (protected as described) is routed in such a way on the articulated cable carrier that in the extended as well as in the folded condition of the carrier no damages can occur.

Mounting in 3rd-Party racks

For mounting the server in a 3rd-Party rack the following parts from the rack mounting kit S26361-F2734-E/L31 are necessary:

- two telescopic rails (assembled)
- four assembly brackets (VL; VR; HL; HR)
- (possibly) eight plug washers
- (possibly) protective hose for fibre channel optical waveguide cable
- ▶ Consult the original manual of the 3rd-Party rack for information about mechanical installation in the rack and/or environmental considerations.

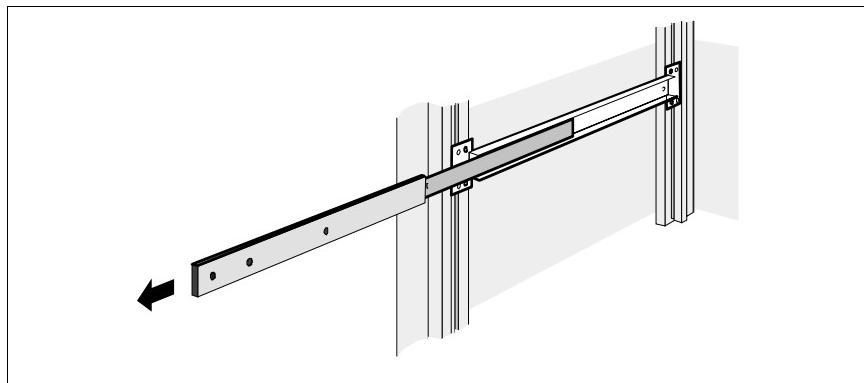
! When installing the server in a 3rd-Party rack it is essential that air flow is maintained from the front of the rack to the rear of the rack to properly cool the server.

- ▶ Mount the necessary manufacturer original parts (like support angle or cable management).
- ▶ **i** Sometimes a number of parts of the delivered mounting kit cannot be used because original parts of the 3rd-Party rack are to be used.
- ▶ Mount the supplied four assembly brackets on the telescopic rails as described in [page 02-TX150S2-142](#).
- ▶ Mount the assembled telescopic rails with the brackets in the 3rd-Party rack as described in [page 02-TX150S2-142](#).
- ▶ Mount the server (see [page 02-TX150S2-154](#)).
- ▶ Route the cables as described in the original manual of the rack.

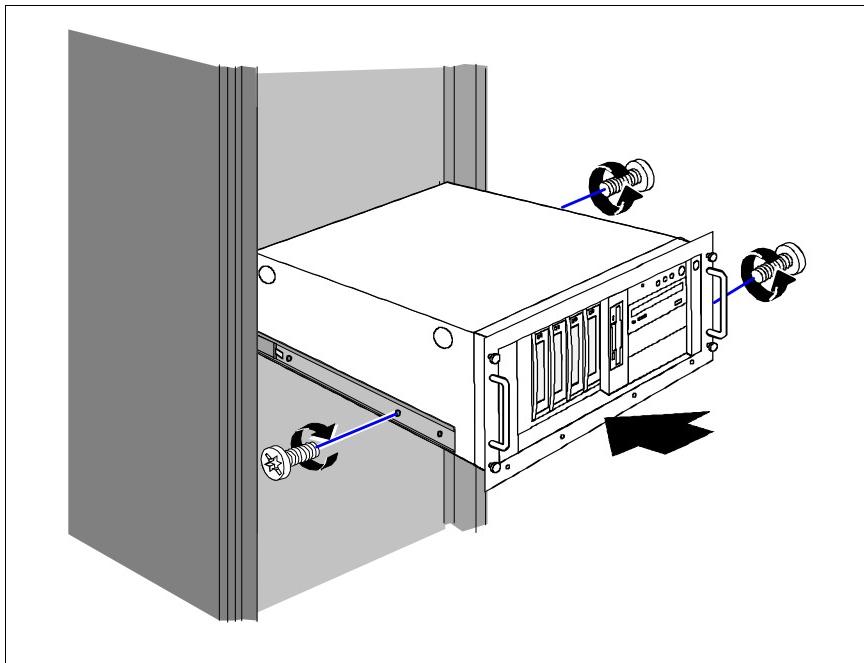
Installing the server



At least two people are needed to position the server in the rack.



- ▶ Pull the mounted telescopic bars completely out toward the front. They must click into place so that you can no longer push them back.



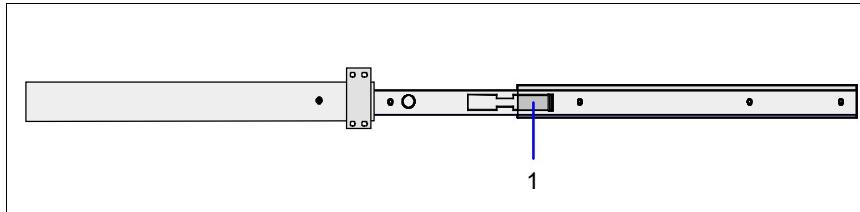
- ▶ Lift the server onto the two projecting telescopic bars.



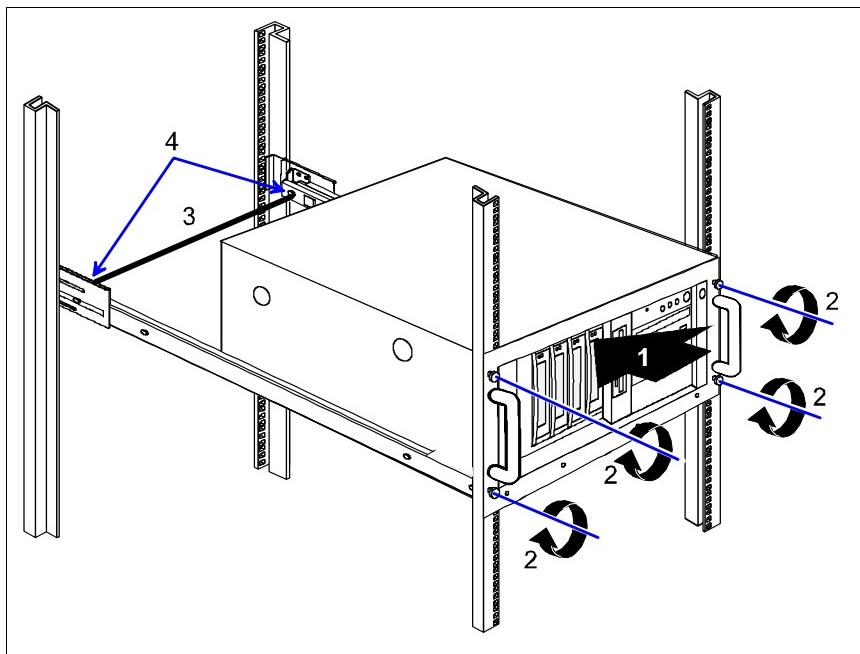
Never lift the server into the rack using the handles on the front panel.

- ▶ Position the server so that the holes of the telescopic bars are in line with those of the server. When doing this, ensure that the telescopic bars are kept in a locked position.
- ▶ Secure the telescopic bars to the server using three M4x6 screws: on the left side, one screw on the center hole and on the right side, one screw on the center hole and one screw on the rear hole.

The following steps can then be carried out by one person only.



- ▶ Press in the safety springs (1) on both telescopic bars.



- ▶ Slide the server into the rack (1).
- ▶ Fasten the server in the rack (2) using the four knurled screws.
- ▶ If the server is installed in a PRIMECENTER or a DataCenter rack, position with inserted server the supplied spreader bar (3) in the corresponding holes (4) of the two telescopic rails.

Overviews, lists

Spare parts

You can find spare part lists and the Ersin data base under:

<http://extranet.fujitsu-siemens.com/service/spares>

Glossary

The technical terms and abbreviations given below represent only a selection of the full list of common technical terms and abbreviations.

AC	Alternating current
ANSI	American National Standard Institute
ACPI	Advanced Configuration and Power Interface
AGP	Accelerated Graphics Port
AOL	Alert On LAN
APM	Advanced Power Management
ASR&R	Automatic Server Reconfiguration and Restart
ATA	Advanced Technology Attachment
BIOS	Basic Input Output System
BMC	Baseboard Management Controller
CAN	Controller Area Network
CC	Cache coherency
CD	Compact Disk
CD-ROM	Compact Disk-Read Only Memory
CMOS	Complementary Metal Oxide Semiconductor
COM	Communication
CPU	Central Processing Unit
DAC	Disk Array Controller
DC	Direct Current
DIP	Dual Inline Package

DMA	Direct Memory Access
DMI	Desktop Management Interface
DVD	Digital Versatile Disk
ECC	Error Correcting Code
ECP	Extended Capabilities Port
EEPROM	Electrical Erasable Programmable Read Only Memory
EGB	Elektrostatisch gefährdete Bauteile (components are in danger of electrostatic)
EMC	Electromagnetic Compatibility
EMP	Emergency Management Port
EMV	Elektromagnetische Verträglichkeit (electromagnetic compatibility)
EPP	Enhanced Parallel Port
ESD	ElectroStatic Discharge (elektrostatische Entladung)
FDC	Floppy Disk Controller
FIFO	First-In First-Out
FPC	Front Panel Controller
FRU	Field Replaceable Unit
FSB	Front Side Bus
GAM	Global Access Manager
GUI	Graphical User Interface
HDD	Hard Disk Drive
HSC	Hot-Swap Controller
I ² C	Inter Integrated Circuit
IDE	Intelligent Drive Electronics
I/O	Input/Output
ICM	Intelligent Chassis Management
ID	Identification
IDE	Integrated Drive Electronics
IPSEC	Internet Protocol Security
IPMI	Intelligent Platform Management Interface
IRQ	Industrial Standard Architecture
LAN	Local Area Network
LBA	Logical Block Address

LCD	Liquid Crystal Display
LUN	Logical Unit Number
LVD	Low-Voltage Differential SCSI
LWL	LichtWellenLeiter (fiber optic cable)
MBE	Multi Bit Error
MMF	Multi Mode Faser
NMI	Non Maskable Interrupt
NVRAM	Non Volatile Random Access Memory
OLR	OnLine Removable
OS	Operating System
PC98	Information bus between system board and power supply
P64H	PCI64 Hub
PCI	Peripheral Component Interconnect
PDA	Prefailure Detection and Analysing
POST	Power ON Self Test
PXE	Preboot eXecution Environment
RAID	Redundant Arrays of Independent Disks
RAM	Random Access Memory
RAMDAC	Random Access Memory Digital Analog Converter
RDRAM	Rambus Dynamic Random Access Memory
ROM	Read-Only Memory
RSB	Remote Service Board
RTC	Real-Time Clock
RTDS	Remote Test and Diagnose-System
SAF-TE	SCSI Accesses Fault-Tolerance Enclosures
SATA	Serial ATA (Advanced Technology Attachment)
SBE	Single Bit Error
SCA	Single Connector Attachment
SCSI	Small Computer System Interface
SDR	Sensor Data Record
SDRAM	Synchronous Dynamic Random Access Memory
SEL	System Event Log

SGRAM	Synchronous Graphic Random Access Memory
SMB	System Management Bus
SMI	System Management Interrupt
SSU	System Setup Utility
USB	Universal Serial Bus
VGA	Video Graphic Adapter
WOL	Wake On LAN

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